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THE HISTORICAL DEVELOPMENT OF PUBLIC HEALTH WORK IN ENGLAND.

ARTHUR NEWSHOLME, M. D., K. C. B.

An Address at the Forty-seventh Annual Meeting of the American Public Health Association, New Orleans, La., October 27, 1919.

"There is much illness that might have been avoided if there had been an organized system of state medicine," says Sir Arthur Newsholme, speaking of England. He would give a freer hand to the health officer who measures up to the standard. England's chief defect lies in the existence of small and inefficient local health bodies.

THE subject is too large to be treated adequately in the course of an evening's address; and to bring it within manageable compass it is necessary for me to select my material rigidly and, so far as I can, to present this material in such a manner as will bring into relief its salient and most instructive features.

The evolution of public health in England proceeded by experimental steps, some mistaken and then retraced, others mistaken and not retraced, but steps oftenest in the direction of a complete service, which is the goal of our work.

The evolution has been a gradual growth arising out of realized needs, rather than a logical development based on general principles; and as politicians and legislators seldom take a wide outlook, or consider a specific proposal in relation to what is already being done, and to what is the desired goal, the English experience is especially instructive.

Public health work became an urgent necessity when men began to huddle in towns; and with the industrial revolution of the eighteenth and early nineteenth century the need for remedial action became acute. It is hard to realize that in the days of our grandfathers, the home was in most instances the unit of industry; and that in the eighteenth century communications between districts and towns were not more advanced than those of the ancient Egyptians. When, however, vast urban aggregations of population multiplied, travelling facilities rapidly increased, and the results of crowding, of contaminated water supplies, of intensive and widespread infection were seen in devastating endemic and epidemic diseases. Pov-

erty, squalor, dirt and their consequences were rampant in the towns, in which underpaid work people were exploited by masters, whose self-centered outlook had some share of justification in the political economy doctrines of the time, which regarded any interference with "freedom of contract" as useless or even pernicious.

The Scope of Public Health Work.

What is public health work? It is best defined by stating its object, which is to secure the maximum attainable health of every member of the community, so far as this can be secured by the authorities, local, state, or federal, concerned in any part of government, acting in coöperation with all voluntary agencies whose work conduces to the same end. The connotation of public health becomes wider year by year. It embraces physiological as well as pathological life; being as much concerned with improving the standard of health of each person, as with the prevention and cure of disease. Hence the importance of the "concentration on the mother and her child" (John Burns), to secure for them by all practicable means the conditions of complete health, which during the last twelve years has been a vital part of our public health work, and which is now being made to include not only all hygienic and medical help that may be needed, but also such domestic aid as may enable the mother to bring her children into the world and to rear them under advantageous conditions.

Public health embraces some eugenic elements, and may comprise more when eugenists have accumulated adequate non-fallacious and unbiased evidence on which to base valid conclusions. Already partial steps are being taken to secure the segregation and prevent the propagation of the feeble-minded and the insane; and in sorting out true heredity from congenital infection action is being taken to avoid congenital syphilis and to prevent the large number of stillbirths due to this race-poison.

Public health in the main is concerned primarily with the environmental measures calculated to prevent the attack of man by disease, whether pre-natal or post-natal. These measures may be industrial, as in the prevention of accidents, of dust, of noxious vapors; or sanitary, as in the control of water supplies, food, or milk, and in the removal of organic filth; or may be the application of preventive medicine, against infectious and non-infectious diseases; or therapeutic, consisting of the prompt and adequate treatment of all illnesses and the curtailment of the incompetence due to them; or educational, consisting, first in importance, in the training of medical practitioners, of public health officials, and nurses, and next in the education of the general public and especially of the children in our schools, in the science and practice of public health.

Advances in public health in many directions can only be secured by continued and extended medical research; and public health, therefore, has a direct and immediate interest in promoting and subsidizing such research.

These being the objects of public health, how far have we travelled towards securing the end in view? I do not propose to myself the pleasant task of showing to what extent the general death rate has been lowered, infant and child mortality greatly reduced, the duration of life extended, how typhus and smallpox have been almost eradicated, typhoid fever made a disappearing disease, and tuberculosis has become the cause of only half its former death rate. When inclined to indulge in such pleasant considerations, I recall the statement I have made elsewhere that one-half of the mortality and disablement still occurring at

ages below 70 can be obviated by the application of medical knowledge already within our possession.

Let me attempt the more difficult task of outlining the history of forms of administrative control of disease since 1834.

Reform in the Control of Poverty.

Poverty and disease work in a vicious circle in which cause and effect often change places; but it is certain that disease is one of the most fertile causes of of poverty, using the word poverty in the sense of privation of one or other essential of physical well-being.

For this reason, and because the half-starved form a constant social danger, poor-law administration long antedated public health administration. There is not time to follow the course of earlier poor-law administration, with its many and grievous abuses. The Poor-Law Amendment Act of 1834, gave the Central Government control over the systems of local relief, secured the combination of parishes into unions for poor-law relief,* and forbade out-door relief to able-bodied men. The creation of an organ of central control has led to the subsequent course of aid to paupers being determined in the main in London; action of poor-law guardians being subject to supervision by government inspectors, and to endorsement by the Central Authority. At first medical assistance under the reformed poor-law was made as deterrent as non-medical relief; and although there has been much improvement, chiefly on the institutional side, medical treatment under the poor-law has to some extent retained this deterrent element, and it has—excepting in the poor-law infirmaries of large cities—continued to be generally disliked by the people concerned.

* The importance of this is seen in the fact that there are in England and Wales 14,614 parishes, only 646 unions for the relief of the poor.

The first Central Poor-Law Authority was a Commission having no representative in Parliament. In 1847 it was replaced by a Board, the president of which was a member of Parliament and of the government. Here once for all Parliament declared its intention to maintain direct control of central official government, and in this and in all other departments has done so. If democracy is to be real—and we have no sound practicable alternative to it—evidently the representatives of the people must be masters of the administration; and English policy has never wavered on this point. After many years' experience of public life in England, I have no hesitation in saying that this principle is sound; that it insures progress which, although slow, is less liable to relapse than administration under autonomous expert officers or commissions, whether centrally or locally; and that any lack of progress that has been experienced in Central Government has been as much the result of inactivity and of lack of sympathy with social reform on the part of the permanent officials of government departments who have had access to their parliamentary chief, as of the inertia of politicians or their obstruction to reform.

Dissatisfaction with poor-law administration has steadily increased in the years since 1834, as the problem of the able-bodied pauper has diminished and the poor-law has been concerned more and more with the sick and infirm, the aged and children. These at the present time form some 98 per cent of the total population relieved. The fundamental principles of the poor-law were rightly attacked. It did not comprise elements tending to build up disabled families, or to prevent families from falling hopelessly and permanently into destitution. The law was administered almost entirely with a view to *relief;* practically not at all as a

curative agency. In medical language, symptomatic and not rational causal treatment was the rule.

In medical relief, poor-law administration has been a constant struggle between increasingly humane treatment and the conception that the pauper's position must remain inferior to that of the non-pauper; an important principle when applied to the able-bodied adult who has drifted into willing dependence; absolutely mischievous when applied to sick persons, and to dependent women and children.

The general dissatisfaction with poor-law administration led to the appointment of a Royal Commission on the Poor-Laws, which after several years' deliberation presented in 1909 a majority and a minority report. Both these reports recommended the abolition of boards of guardians, and the transfer of their duties to the 144 largest public health authorities in the country (county councils, 44, and the councils of county boroughs, 82), and the abolition of the general workhouse. The majority report would have continued the poor-law guardians as a committee of the new authority, the minority report proposed to distribute the duties of the guardians to different committees of the public health authority; thus medical treatment to the Public Health Committee; the care of lunacy and feeble-minded to the Asylum Committee; care of children to the Education Committee; vagrants, etc., to the Police Committee, while a special committee would concern itself with all questions of monetary assistance.

A compromise between these two schemes has recently been arranged; and when the new Ministry of Health, which will combine public health, poor-law, insurance and educational medical work in one department, has found time to do urgently needed work, the above indicated reform may be hoped for, along with the equally needed reform of local Public Health administration, and the abolition of a large number of the smaller and less efficient sanitary authorities. With these reforms will come much needed decentralization of poor-law work. Good work in all respects cannot be secured if the Central Authority concerns itself, as at present, in minutiæ of local administration, and has no time to devote itself to the larger problems, and to the task of bringing indifferent, chiefly smaller authorities up to the standard of efficient local authorities. A large portion of the expense of local poor-law administration is borne by the central exchequer, and this money, if properly applied, will give the necessary leverage for reform, while leaving progressive authorities, and especially the authorities of large towns, freedom to experiment and advance.

Reform in Industry.

The industrial revolution meant the subjection of large masses of working-class families to evil conditions of housing and work in crowded and insanitary dwellings and factories. The public conscience first rebelled in regard to boarded out and apprenticed pauper children; and the first Factory Act in 1802 concerned itself with them; and with this act emerged the germ of machinery for securing compliance with the law, magistrates and clergymen being appointed as inspectors under the act.

The act was largely futile; but it meant the beginning of the gradual breaking down of *laissez faire* doctrines; and there followed a more widely operative Factory Act in 1833, restricting hours of labor of children, and initiating professional inspectors controlled and paid by the government. In 1842 the underground employment of women in mines was forbidden; and there have followed at intervals since then numerous factory and allied acts, restricting the

duration and conditions of work of women and children, improving rules as to sanitation, ensuring systematic inspection by government inspectors, and constituting a far-reaching system of supervision and control.

The inspectors, on whom falls the burden of ensuring compliance with the Factory Laws and regulations made under them, are controlled by the Department of the Central Government known as the Home Office; their work has been well done, and the conditions of factory and workshop life have greatly improved. Some portion of the sanitary supervision of these workplaces falls on the local Sanitary Authority; but in the main the system is one of absolutely centralized government control. This secures almost complete absence of improper influence of interested local persons, whether masters or workmen; but it is arguable that this system should be replaced by a localized system, the inspectors being officers of the 144 larger authorities. These local officers could be placed in direct touch with the Home Office or the Ministry of Health and with the central staff of inspectors having special expert knowledge in the different branches of industrial work.

Public Health Reform.

Public Health reform was a direct consequence of the Poor-Law Amendment Act, 1834. Anxious to diminish the enormous expense of the existing poor-law, and realizing that a large share of the sickness was due to fever and other illnesses, the commissioners administering this act, set on foot surveys and inquiries and the reports which followed revealed a state of things urgently calling for sanitary reform, in the interest of national economy as well as of health. "An act for promoting the public health" was passed in August, 1848, which created a General Board of Health consisting of four members and a secretary. These commissioners (among whom was Edwin Chadwick, former secretary of the Poor-Law Board) initiated a system of procedure, which was largely on the lines of poor-law action, and which involved constant pin-pricking by the Central Authority of the grossly indifferent local authorities. The commissioners were more zealous than discreet; and after six years they were no longer tolerated. At that time centralization was as much a bogie as socialism has become in more recent years. Parliament and the localities represented by its members doubtless feared the reforming activity of Mr. Chadwick and his colleagues, though they sheltered themselves behind their exaggerated fears of bureaucracy and centralization.

A new board replaced the old, parliamentary in character, its president being a member of the government.

This repeated, so far as concerns parliamentary headship, the story of the Poor-Law Board, and established once more the theory of the administrative control of the representatives of the people.

Nor, although the change meant for the time serious slackening in sanitary reform, can objection be taken to this. In a democratic government, the elected representatives of the people must take first place; and it is the rôle of officials to educate them in the direction of needed reforms. Reforms which do not carry public opinion with them are not likely to be permanently successful; and whether in administration or in legislation attempts to side-track or ignore this fact are not likely to be permanently effective.

When the Local Government Board was formed in 1870 a second opportunity was lost of developing public health administration on lines which, we now know, to be the best adapted for a com-

plete service of preventive medicine. The first lost opportunity was when sanitary authorities completely separate from poor-law authorities were created for administering the sanitary laws. Probably this arose from Chadwick's despair of getting effective sanitary reform from poor-law guardians; but the creation of separate authorities was scarcely consistent with the fact recognized by him that pauperism is largely, if not predominantly, a question of sickness; and the less recognized fact that its treatment forms an essential part of prevention. It was recognized that the care of the sick was largely idle until the unnecessary causes of disease had been cut off, but not that the adequate treatment of sickness is an important means of preventing it or of curtailing it. Rumsey, in his "Essays in State Medicine," 1856 (pp. 190, 277, 282) stated the unrealized possibilities of the poor-law medical officer's domiciliary attendance on paupers in the following words:

"There are much higher functions of a preventive nature than those of a mere 'public informer' which the district medical officer ought to perform. He should become the sanitary adviser of the poor in their dwellings . . . he (should) be in a peculiar sense, the missionary of health in his own parish or district, instructing the working classes in personal and domestic hygiene, and practically proving to the helpless and debased, the disheartened and disaffected, that the state cares for them—a fact of which, until of late, they have seen but little evidence."

In the result the *adhoc* poor-law authority did not absorb into it the newly created municipal and urban and rural sanitary administration, but continued on its separate path.

Simon in 1868 had urged the inadvisibility of continuance of *adhoc* authorities, and had urged that, at least, sanitary authorities should be made coterminous in area of administration with poor-law districts. His advice was not adopted, and there followed years in which sanitary authorities were allowed to subdivide areas, until the total number became 1,807 instead of 635, the number of poor-law authorities; and in which they concerned themselves chiefly with nuisances and water supplies and with inadequate provision for the prevention and treatment of infectious diseases. With the creation of county councils and the more complete autonomy of the councils of county boroughs, the large centers of population developed and improved their sanitary administration more rapidly; and it became practicable to undertake every division of sanitary work on an efficient scale. Although much remains to be done, it can be claimed that in our larger towns, containing more than half of the total population of the country, the public health work in nearly all of its branches is of a high order. It would have been still more efficient had the poor-law guardians been merged in the Town Council, and the relationship between the school medical service and the other branches of the public health service been closer than has been the case.

What is now needed is that the defects just named should be made good; that more complete autonomy should be given to the authorities which come up to a required standard, and that especially they should have greater freedom in developing local possibilities of improved administration. Central grants in aid of local sanitary administration are steadily increasing. Already the government pays one-half of local expenditure on a large program of maternity and child welfare work, one-half of the expense of local tuberculosis work, and three-fourths of the expense of local work for the diag-

nosis and treatment of venereal diseases and for propaganda work concerning these. These grants should be the means of greatly increasing good local administration, but if,—this is improbable,—they curtail local experimentation and extension, and bring local Public Health administration into anything approaching the subservience of local poor-law administration, the value of these subventions will be doubtful.

Education Authorities and Health.

The national system of compulsory elementary education inaugurated in 1870 has had valuable indirect influence in promoting the public health. Apart from the beneficent effect of education, the steadily increasing pressure on children to come to school in a cleanly condition, the stimulus of emulation in tidiness and cleanliness, have done much to improve the home conditions of the people. After the South African war much attention was drawn to the large number of recruits rejected owing to physical disabilities; and an Inter-Departmental Committee reported *inter alia* in favor of a system of medical inspection of scholars in elementary schools, which had often been urged by hygienists. Observations made in Glasgow and Edinburgh by Leslie Mackenzie did much to draw attention to the physical defects in Scottish school children. In 1907 the Board of Education acquired power to make provision through the local education authorities for the medical inspection and treatment of school children. At first little more than inspection of scholars was undertaken, a large number of defects of sight, hearing, parasitic conditions, as well as malnutrition and actual disease being discovered. Gradually some items of treatment were undertaken at school clinics, or at hospitals or centers subsidized by the education authorities; though the amount of treatment is still small compared to the defects discovered and not otherwise treated.

But there now existed in every locality three authorities concerned in the treatment of disease:

1. Poor-law guardians—treating all forms of illness in paupers, at home and in institutions.

2. Public health authorities—undertaking preventive measures against disease, and treating fevers, tuberculosis, and occasionally other diseases in institutions; and more recently providing nurses at home for certain conditions.

3. Local education authorities—concerned in treating certain ailments in school children.

Centrally two government departments were supervising this work, and subsidizing it to some extent from government funds; and the poor-law medical work and public health medical work were supervised by two divisions of the Local Government Board acting in almost complete isolation. More recently Parliament has permitted the Board of Education to give grants in aid of schools for mothers, and allied institutions for the care of children under school age; for which institutions, substantially, the Local Government Board in other instances was giving grants.

The separation of educational medical work from Public Health medical work was contrary to the first principles of sound administration, although it is possible that, owing to the inertia in some public health circles, this separation at first favored rapid advance in school hygiene; just as the early development of public health apart from poor-law administration was probably more rapid than could have been expected from centrally ridden local authorities, concerned chiefly in keeping down the poor rates.

The Adhoc Vice.

But in both instances there was an offence against the first principles of good administration, which require that when a special function is to be undertaken it shall be undertaken by one governing body for the whole community needing the service, and not for different sections of the community by several governing bodies. Medical treatment is needed for school children and for the poor generally. Why separate this into two administrations? Hospitals are required for paupers with tuberculosis, and for non-paupers with tuberculosis. Why have two authorities for this work? The separate existence of Education and Poor-Law Authorities quâ medical attendance on those needing it erred, not only in this fundamental respect, but also because neither of these authorities has the preventive facilities and powers possessed by Public Health authorities, who were also partially engaged in the treatment of disease.

The inveterate tendency in the past has been to create a new authority when any new work was inaugurated, this authority then fulfilling all purposes for a special portion of the community and thus necessarily reduplicating the staffs of other departments of local or central government. The crowning instance of this recurring instance of legislative myopia is seen in the case of the National Insurance Act under which has been provided an imperfect and unsatisfactory domiciliary medical service for one-third of the entire population of Great Britain, when by combining and extending the medical forces of existing departments of the state, a satisfactory service for all needing it would have been secured. The axiom that "the object of community service is to do away with group competitions and bring in its place group coöperation or team work" (Goodnow) is especially applicable to all public health and medical work; and its spirit is infringed by the existence of separate, sometimes competing, occasionally conflicting, services under separate local and central control.

Principles of Local Government.

The preceding considerations bear on the perennial problem of efficient government, local and central. There are three functions to be performed in government, legislation, determination of administrative policy and extent of work, and the actual executive work. In England legislation is in the hands of Parliament; but large cities not infrequently obtain special legislative power to meet local needs; and by this means have succeeded in advancing local efficiency above the average standard. Local authorities, furthermore, have the power to make regulations and by-laws for special purposes, subject to the approval of the Central Authority.

In settling the details of local administration, the elected representatives of the public are supreme. They meet in council, and action is taken on a majority vote. The councils of counties and cities, and even of smaller municipal boroughs divide themselves into committees, consisting of about a dozen members, elected by vote of the whole council. The chairman or mayor of the council has no special power, except that he may give a casting vote.

The chief defect in local sanitary administration in England is the continued existence of a large number of small and relatively inefficient local authorities. The larger authorities as a rule do their work well, and politics enter but little into elections. Official posts are not vacated with changing councils. These councils are approximating to the ideal

of a complete local Parliament dealing with all governmental concerns, and to the further ideal that each unit of government should be large enough to minimize the influence of local interested motives, and to undertake each department of municipal work on a considerable scale. The local Parliament has committees concerned with police, finance, public health, education; and when the urgently needed poor-law reforms are made, and when the Education Committee hands over its medical work to the Public Health Committee, the ideal will become a fact.

Power is already given to coöpt by vote of the council a few persons on to some of these committees who are not members of the council, from among men or women having special knowledge of the committee's work; and the exercise of this power has been found to be useful.

But in each committee it is the direct representatives of the public who decide points of policy and settle the main outlines of administration. There is growing up a tendency to appoint not only central but also local advisory committees, consisting of special groups respresenting professional or trade interests. Thus a medical committee may be consulted on medical proposals, and so on. This procedure is still in the experimental stage. It will probably prove permanently useful, as voicing the occupational aspect of any proposed work of the municipality; but it will need to be kept to its strictly consultative limitations, and the responsibility of the council as representing the combined wisdom or unwisdom of the entire community must be maintained.

All substitutes for government of the people by the representatives of the whole population are open to objection. They do not contain within them the elements of permanence. If there is a corrupt council, the remedy is not its supersession by an independent executive. Such an executive is the abrogation of popular government. "Good and efficient government is possible under almost any form of organization. More depends upon men than devices." "But—if we believe that the functions of deliberation or determination of municipal policy and of administration or the execution or carrying out of that policy should be kept distinct, we cannot avoid the conclusion that a city council is a necessary part of the municipal organization." (Goodnow: Municipal Problems, p. 226.)

Each committee of the local council is advised by the county clerk or town clerk on legal and administrative matters; and the medical officer of health and other expert officers, like the legal adviser, in nearly every instance, hold office during good behaviour. Under the above arrangements the elected members and the officials are kept in touch with each other. The latter's recommendations and actual work must be approved by the former; and this works well under the system of determination of policy by committees, subject to confirmation and control by the entire council. The motive power is public opinion. Good work cannot for any prolonged period go beyond what the public demand; and the work of officials is one of constant education of their immediate masters the Council and of their ultimate masters the public.

The Training and Tenure of Office of Medical Officers of Health.

Every sanitary district is required to appoint a medical officer of health and since 1888 every medical officer of health for a district with a population exceeding 50,000 must have a special diploma in public health. The enforcement of this requirement has done much to raise the standard of work of these officers. It is

significant, furthermore, that while in 1873 the percentage of the total population of England and Wales having whole-time medical officers of health was only 20.6, it had increased to 61.4 per cent in 1911. In the metropolis, in the whole of Scotland, in every English county (44) and in many other districts these officers possess security of tenure, in the sense that they cannot be removed from office without the consent of the Central Government, which usually pays half their salaries. Even without this safeguard, removal from office by the local authority is rare; but there has been long delay in securing the further reform that in all areas the medical officer of health should be able to perform his difficult and sometimes obnoxious duties without fear of removal from office, or of reduction in his emolument, except as the result of deliberate action on appeal to a central authority.

When pensions can be earned by medical officers of health and by all medical men on the public health staff their position will become more attractive for men of good standing; and this reform has become more important, in view of the steadily increasing complexity of the medical work now undertaken in a large public health department. It includes *inter alia* the following activities:

Superintendent Medical Officers of Health.
District Medical Officers of Health.
Tuberculosis Officers.
Medical Officers of Maternity and Child Welfare Centers.
Medical Officers of Venereal Disease Centers.
Medical Officers of Fever Hospitals.
Medical Officers of Tuberculosis Sanatoria and Hospitals.

The development of a graduated public health medical service, in which each physician employed will be able to develop his own special abilities, will be easier when to the above list is added the work of

District (late poor-law) Medical Officers.
Medical Practitioners, attending insured persons and such other persons as are treated at the expense of the State.
Treatment Centers, for Special Conditions (ear, eye, throat, gynoecological and other special departments).
Hospital Treatment for General Diseases.

That there will be development in these directions when the tangle caused by the National Insurance Act of 1911 has been unravelled, there can be no doubt.

The National Insurance Act and Public Health.

I have in another address expressed my opinion as to the additional tangle introduced into the central and local government of the United Kingdom by the National Insurance Act of 1911.

The failure of the British government to act on the recommendations of the Poor Law Commission of 1909 was a serious misfortune to public health. Sickness is the cause of a predominant part of our total destitution, and to allow the continued separation of administrative action respecting these two problems is inconsistent with a full measure of success. Political circumstances, however, led to the adoption of a course which medically ran directly athwart the course of needed reform.

The National Insurance Act was passed, placing one-third of the total population (all employed manual workers and other employed workers with an income below £160—since increased to £250)—under an obligation to pay 4*d* weekly (women 3*d*), 5*d* being contributed for each person by the employer (3*d*) and the state. In return each worker received

a money payment weekly during illness, attendance by a doctor, sanatorium treatment for tuberculosis, and a maternity benefit on the birth of a child to his wife (30*s*, or if the wife also is industrially employed an additional 30*s*). The medical benefit is limited to such domiciliary attendance as a medical practitioner of average ability can furnish. It continues the old conception of private medical practice, and allows the public to remain obsessed with the notion that satisfactory medical care consists in a "visit and a bottle." No provision is made for pathological aids to diagnosis, beyond what is already provided by public health authorities. No nurses are available for serious cases; the insured person is not entitled to surgical operations, when needed, except of the simplest character. With few exceptions, no appliances are provided; and the treatment of special diseases of the eye, ear, nose and teeth is commonly excluded. No hospital provision whatever is made except for tuberculosis.

The contract system of medical practice has been accompanied by a serious amount of lax certification of sickness. The Sanatorium Benefit is unnecessary, as soon as the duty of public health authorities to provide treatment for tuberculosis is declared obligatory. It is already very largely provided. The Maternity Benefit is entirely unconditional; there is no guarantee that it is devoted to the welfare of the mother and infant. It needs to be supplemented or replaced by the arrangement for providing nurses, doctors, midwives and domestic assistance in process of development by public health authorities.

In short, there is no justification for providing medical services, preponderantly at the expense of the state (contributions by employers are a form of taxation), which are limited to a favored portion of the total population, and which do not benefit all in need of these services.

The principle of monetary insurance against sickness and disability is thoroughly sound. It forms a praiseworthy and valuable provision against future contingencies. Insurance, however, is not synonymous with prevention as is too often suggested. In England insurance has been an actual impediment to public health work; though it might have gradually become a useful auxiliary to it, if otherwise organized, and especially if the creation of independent insurance committees, representing interests to a preponderant extent, had been avoided. But any medical service needed for purposes of insurance should not form part of the insurance system. Medical aid is needed for a large section of the population who are unable to afford deductions from their wages, or who have no wages. It is needed for wives and children as much as for the industrially employed head of the household; and it is needed for many others who are excluded from the scope of the National Insurance Act. Only when the medical is separated from the insurance service, and when the medical practitioner, as far as practicable, is made independent of the patient who desires too facile a sick certificate, will good medical work and sound sickness insurance be secured.

General Summary.

The preceding review of the history of public health in England is necessarily fragmentary. It does not include for instance a discussion of the relationship of the medical profession to public health authorities. On this I content myself with repeating my oft-stated opinion that, until every medical practitioner is trained to investigate each case of illness from a preventive as well as from what is often rather a pharmaceutical than a

really curative standpoint, until a communal system of consultant and hospital services independent of any insurance system is made available for all needing it, and until every medical practitioner is related by financial and official ties to this communal system, full control over disease,—to the extent of our present available medical knowledge,—will not be secured.

The communal system will include not only the provision of domiciliary nurses for all needing them, but also a greatly increased staff of public health nurses engaged in educational supervision in connection with the work of the communal services and of each individual practitioner. Such a system will repay the community manifold in improved health and a higher standard of happiness and well-being.

If objection is taken to such wide sweeping proposals, let me remind you that free communal services of sanitation and education are already provided; and that the personal care of health is of equal importance with these. All will agree that a large proportion of the population cannot afford to pay individually for medical attendance and nursing under present conditions, still less for the consultant and hospital services which advance in medical service has rendered indispensable. There is always present in our midst a large mass of illness which might have been avoided or curtailed had there been an organized system of state medicine.

Lest any should be alarmed as to the possible consequences of the coöperative provision on such a scale of this primary need of humanity, let me remind you that coöperative medical aid differs from financial aid in an essential particular. It does not create a demand for further aid, but is always engaged in diminishing this demand. Dependency on financial assistance is liable to continue indefinitely; much wants more. This result of medical aid is almost inconceivable.

The Rev. Dr. Chalmers of Glasgow said early in the last century: "Ostensible provision for the relief of poverty creates more poverty. An ostensible provision for the relief of disease does not create more disease."

Dr. Chalmers was opposed to the giving of any domiciliary assistance from rates or taxes, and he organized his parish so that every needy person was adequately helped out of charitable funds. But he advocated extended hospitals and other medical assistance for the poor; and until this is done, apart altogether from any system of insurance, and as a complete measure on the lines of our educational system, we cannot say that all that is practicable has been done to secure the physical well-being of our fellow-citizens.

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The New Orleans papers are coming right along in the Journal in a continuous procession of good health administration good things. In January, look for "Administrative Handling of the Drug Addict" by E. S. Bishop, M. D., "Practical Types of Sanitary Privies" by C. W. Stiles, M. D., and others.

ADMINISTRATIVE MEASURES AGAINST INFLUENZA.

ALLEN W. FREEMAN, M. D.,
State Commissioner of Health, Columbus, Ohio.

Read before General Sessions, American Public Health Association, at New Orleans, La., October 28, 1919.

Science has not yet revealed any successful specific measures against influenza. Isolation and popular education are the only justifiable general methods known at present. Energies must be directed to preventing the complications rather than to preventing influenza. Research is needed and health officers can help by securing accurate records. : : : : : : : : : : :

ADMINISTRATIVE measures for the control of any disease depend for their success upon the possession of specific knowledge regarding that disease. This specific knowledge may make it possible for us to control the disease either by raising the mass immunity of the population above the point of infectibility, as in smallpox; by breaking one or more links in the chain by which the infection travels from patient to victim, as in yellow fever; or by a combination of both procedures, as in typhoid fever. Sanitarians have, however, of necessity, when facing the dire need of formulating a programme against a disease regarding which specific knowledge is not available, formulated so-called "general measures of control," hoping by doing many things to hit upon the necessary specific thing. Sanitary history does not record the success of a single one of the many such attempts that have been made. This is not surprising, since every sanitarian knows that even when applying specific knowledge, only the most painstaking attention to minutest details of procedure will produce recognizable results. Such results cannot be produced when a procedure is carried on along with many similar ones, without special emphasis and without recognition of its special importance as compared with others so applied.

No one can seriously contend that we have in our possession the specific knowledge necessary to enable us either artificially to raise the mass immunity of the population against influenza, or to break the chain of infection from patient to victim. Lacking such information we have formulated, more or less consciously, certain hypotheses regarding the disease and have put into effect certain procedures based on them.

The hypotheses on which we have operated up to this time may be stated about as follows:

1. Influenza is caused by a specific living virus. This is based on analogy only and there is no experimental evidence confirming it.

2. The portals of entry of this virus are the nose and the mouth. This hypothesis is based in part on analogy and in part on clinical and pathological evidence. It is not confirmed by experimental evidence.

3. This virus is contained in the secretions from the nose, mouth and respiratory tract. This hypothesis is based on analogy and on certain suggestive epidemiologic facts. Experimental evidence has so far failed to confirm it.

4. The virus is communicated by transference of spittle and nasal secretion through direct or indirect contact, and by droplet infection from coughing and sneezing. This hypothesis is based on analogy and is a corollary of hypothesis three.

These hypotheses constitute the basis of such preventive measures as have been proposed. No convincing experimental evidence has been advanced in support of any of them. Any, all, or none of them may be true.

Upon these hypotheses as a basis, various preventive measures have been proposed of which the most important are as follows: Isolation of patients; prohibition of public gatherings; masking of the general population; general vaccination with anti-streptococcic or mixed vaccines, and general educational propaganda designed to minimize transference of nose and mouth secretions by direct or indirect contact or by droplet infection.

Isolation of Patients.

The effectiveness of isolation in the control of any disease depends upon several factors, even assuming that all known cases are promptly reported and promptly and effectively isolated from all infectious contacts. The two most important of these factors are the possibility of prompt and accurate diagnosis of clinical cases, and the ratio of abortive and unrecognized cases to those clinically recognizable. This may be expressed mathematically, assuming perfect isolation of known cases as follows:

$$E = \frac{tc}{TC}$$

Where E is the efficiency of quarantine, T the average number of days of infectiousness of a case, t the average number of days of effective isolation, C the number of infectious persons (abortive and carrier cases) in the community, and c the number of recognized cases.

In influenza, the available epidemiological and clinical information indicates with considerable certainty that diagnosis, except in typical cases, is very difficult and that the patient is infectious both before and after the period for which he is bedfast. The number of unisolated infectious days of known cases is, therefore, probably large and the ratio of abortive and carrier cases to known cases also probably high. In influenza, therefore, E is not high. Experience in army camps and in civilian practice during the epidemic of 1918–1919 bears out this view.

At the same time it must be recognized that isolation of known cases is a simple and inexpensive procedure, which does not inconvenience the general public, makes for the comfort and well-being of the patient, and should be employed even though its efficiency is not high.

Prohibition of Public Gathering.

Theoretically, at least, the rate of spread of an epidemic depends upon the number of contacts per day per unit of population between infectious persons and non-immunes. In the absence of other measures, however, and assuming the persistence within the population of carriers of virulent infection, the effect of restrictions of this character is to delay and not to prevent the spread of the epidemic. Experiences in army camps where prohibition of public assemblage was made absolute, and where other methods of restriction of individual movement were carried far beyond what is possible in civilian communities, were not productive of positive results.

In view of the fact that even complete immobilization of the population would be effective only for the time during which it was actually in operation and of the further fact that the epidemiologic evi-

dence points convincingly to the fact that the virus of the disease is almost universally disseminated before the existence of an epidemic is recognized, it is hard to see how prohibition of public gatherings justifies the economic loss and personal and public inconvenience resulting from it.

General Wearing of Masks.

Theoretically, the wearing by all persons, continuously, of a mask of sufficient thickness and so constructed so as to filter all the respired air, without touching the lips, will prevent droplets infection. In practice, none of these conditions is even approximately fulfilled, and like complete immobilization of the population, the measure is effective only for the time it is actually in operation.

The widespread dissemination of infection before the measure can be made effective also militates strongly against its success. In actual practice under military conditions certain observers are convinced that some results were obtained, but no definite statement has been made as to its success in civilian populations.

The hypothesis on which the use of the mask is founded has no experimental evidence to support it, and in the absence of any tangible results from the extensive practical experiments the procedure would appear unjustifiable.

Inoculation of the General Public with Anti-streptococcic or Mixed Vaccine.

The production of an artificial immunity against influenza by the use of a suitable vaccine to be administered to the general public is a most hopeful line of activity. The practically unanimous verdict of laboratory workers, however, is to the effect that the true virus of influenza has not yet been isolated and that such a vaccine cannot yet be prepared.

Various workers have produced vaccines of one kind or another, in behalf of which extravagant claims are made. Where carefully controlled observations have been made, however, these claims have not been borne out.

Until additional evidence is produced regarding existing vaccines or until a truly specific vaccine is developed, general vaccination cannot be considered a sound administrative procedure.

General Propaganda.

The teaching of habits of personal sanitation regarding the secretions of the nose, mouth and respiratory tract is never out of place. The importance of such habits in the practical prevention of other diseases is so well demonstrated that in view of the presumption that influenza is spread from the secretion of the respiratory tract, the unusual emphasis on public education in promoting nose and mouth sanitation is a most essential administrative measure against the disease. Such teaching should include instruction regarding droplet infection from sneezing and coughing, as well as regarding direct and indirect contact infection from kissing, hand shaking, door knobs and other similar means. It cannot by any possibility do harm and may, if effectively followed, do much good.

Measures to Reduce Mortality.

So much, then, for the measures against influenza itself. There remain for consideration those measures designed to reduce the mortality and permanent disability resulting from an epidemic of influenza.

Medical and Nursing Care.

First among these measures is the provision of adequate medical and nursing service. While the return of so many physicians and nurses from military serv-

ice renders this problem far less acute than was the case last year, the occurrence of an epidemic of proportions approaching that of 1918–1919 will bring to light many communities needing the prompt assistance of physicians and nurses. The plans already prepared by the Public Health Service and the Red Cross, supplemented by state and local resources, should permit these local emergencies to be met promptly and efficiently.

The establishment and operation of emergency hospitals for influenza and pneumonia should be carefully planned in advance and carried forward without any of the untoward happenings of last year.

Prevention of Secondary Infections.

The experiences and researches of last winter did not teach us much about influenza but they taught us much about pneumonia. Epidemic pneumonia is fundamentally a secondary infection engrafted on a lung made ready for the infection by the inflammation resulting from influenza. The etiologic agents producing this secondary infection are well known and their means of conveyance well understood. While there are cases of pneumonia apparently resulting from secondary invaders present in the respiratory tract of the individual at the time of development of influenza, all students are agreed that the evidence points strongly to the fact that many influenza patients receive their infection with virulent organisms producing pneumonia subsequent to the influenza, and as a cross infection. The means of preventing such cross infections are simple, well understood and capable of application under average conditions. The lung, infected with influenza, offers as attractive a field to the invasion of pneumonia-producing organisms as does the recently parturient uterus to the invasion of pyogenic organisms. The precautions to be taken in the two cases are founded on the same principles. The influenza patient must be protected against droplet infection and against direct contact infection. Prevention of droplet infection involves adequate floor and cubic space per patient, the more the better, and the placing of patients in individual cubicles. The aim should be to place as much distance and as many obstacles in the way of droplets traveling from patient to patient as possible. Against contact infection of our influenza patients with pneumococcus or streptococcus we have only to interpose the barrier of medical asepsis — a technic well defined and as accurate as is surgical technic. By these means, even though we may not prevent influenza, we may be able to prevent pneumonia—and particularly the fatal streptococcus pneumonia.

Every hospital, permanent and temporary, which treats influenza, should be required to provide at least one hundred feet of floor space per patient and at least nine hundred feet of cubic space. Every such hospital should provide the best of medical aseptic technic for all influenza patients.

Research.

Above all, however, what we most need in influenza is research, information, facts from every source and every angle. Let us not forget that three years ago we came to the end of a terrific epidemic of poliomyelitis. Research was started on every hand. An enormous amount of work was promised. But for the last year there has been no interest in the subject, and when the next epidemic of poliomyelitis comes, we will be no better off than now. The same will be true of influenza. We must have facts, at whatever cost, and we must secure now while

the public still remembers, funds to carry on field and laboratory research until the truth is found.

Summary.

In summary, therefore, we must frankly face the fact that there are no specific measures against influenza which can be expected to yield definite and valuable results. The general measures of isolation and popular education are the only ones which appear justifiable in the light of our present knowledge. Our energies, therefore, must be directed rather to the prevention of fatal complications than to the prevention of influenza itself. For this purpose adequate medical and nursing service and properly equipped emergency hospitals should be organized and made available for instant use. In these hospitals and in the home care of patients every effort must be made to prevent secondary and cross infection.

Above all, we must continue our search for additional facts regarding the disease and for this purpose should insist that adequate financial provision for extensive field and laboratory studies be made by the federal government.

Health officers should themselves cooperate in this work by securing and recording as completely as possible the reports of morbidity and mortality which are available and should lose no opportunity to seek the solution of this sanitary problem which in its importance overshadows any other sanitary problem at this time.

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Cambridge, Mass., Churches Help.—A simple plan for the practical coöperation of Cambridge churches with the health and welfare agencies, both public and private, is being developed along the following lines: Each clergyman is asked to select three members of his parish, who are especially interested in community welfare work, to act as a health committee from his church. This committee is expected to become a bureau of information concerning health and welfare work in the city, through familiarizing itself with the work of the various agencies, by learning the location and hours of special clinics and how to use them, and in many other ways. These committees are coöperating by seeing that babies in the neighborhood are put in touch with the nearest baby health station; that expectant mothers receive the advice and supervision of the prenatal nurse; that every case of tuberculosis is adequately cared for, and that members of such families are referred to their physicians or to the tuberculosis dispensary for examination; that insanitary housing conditions are referred to the proper authorities for correction; and that every social need is met so far as possible. They also extend their friendly services to the newcomers in the city, particularly to those who do not yet speak our language.

In order that a committee may have first-hand knowledge of the agencies which it will use, it becomes intimately acquainted with the personnel of these agencies.

Monthly conferences are held, at which the committees make reports and discuss their problems. The reports are an important feature of the plan, because it is stimulating to know that a report is expected. It shows whether or not the committee is discovering the needs of its neighborhood and meeting them adequately, and each report and discussion is suggestive to the other committees.

Committees are also expected to do educational work by arranging for health talks, lantern-slide lectures and exhibits. The Anti-Tuberculosis Association provides speakers, lantern-slides giving information concerning local health matters, posters, and other educational material.

Such service is not dramatic or sensational, but it is service of the highest quality, rendered in a practical, neighborly way, and is far-reaching, as a large contribution toward the conservation of our greatest national resource, health.—Mabel Greeley Smith, *Health Journal of the Massachusetts Tuberculosis League*, Oct., 1919. (*R.*)

AMERICAN RED CROSS HEALTH CRUSADE.

AFTER EFFECTS OF INFLUENZA IN CINCINNATI.

WILLIAM H. PETERS, M. D.,
Health Officer, Cincinnati, Ohio.

Read before the General Sessions, American Public Health Association, at New Orleans, La., October 28, 1919.

Dr. Peters draws attention to the fact that no big work has been generally done to relieve those debilitated by influenza. There is hardship and need and slow recovery. Cincinnati organized relief along these lines, the Red Cross and the Health Department working in coöperation. Organization and results are given in some detail.

DURING and after the pandemic of influenza which swept our country a little over a year ago, a small army of scientific investigators began and they have continued their researches ever since, forsooth, in the hope of discovering the cause and mode of transmission. Its every phase has been studied, in most instances on a broad basis, and much valuable information has been adduced; yet during all of this time not much has been done in a big way to relieve the victims of influenza, and their number is legion.

"I'm not feeling right," "I haven't my usual pep," "I'm all in since I had the flu," are household expressions and so commonplace that we pay little attention to them, yet we know now that very few subjects of influenza escaped without some pathologic changes. The virulence of the disease has been productive of many sequelæ, some very apparent and others quite as obscure.

Shattered homes, health and income, inability to work, impaired efficiency, loss of earning power, mental anxiety and distress, coupled with the high cost of living, completed the chain of horrors following the ravages of the epidemic.

The economic results of the influenza epidemic were first felt by the various social agencies of Cincinnati early in February. All of the institutions caring for dependent persons, especially children, were crowded. The Mothers' Pension Department, with a budget limited to ordinary years, had received scores of applications from dependent women with families, who had lost their husbands during the epidemic. At the General Hospital, among others, had been 151 families of which every member had been stricken and had been cared for at the hospital, with a net total of 553. The Associated Charities found that of over 400 dependent families, 50 per cent of the wage-earners had been unable to return to work, either because of their physical condition or because their positions had been filled by others during their absence on account of illness.

All of the social agencies then faced the problem of meeting the enormous needs caused by influenza, with the budgets which had been estimated to meet ordinary demands. This situation was reported by representatives of the various social agencies to the Cincinnati War Chest, with the recommendation that a fund for the relief of influenza be created.

A definite plan to provide medical care, nursing service and material relief for those whose health and income had

been shattered, struck a popular chord and as an emergency measure the Board of Directors of the American Red Cross accepted the responsibility of financing such a movement, which was christened the American Red Cross Health Crusade by the Chapter Influenza Committee, named by William Cooper Procter, chairman of the Cincinnati Chapter, the committee to coöperate with the Board of Health and the existing social agencies of the city. The movement gained impetus at a luncheon given in honor of Dr. Lee K. Frankel, president of the American Public Health Association, who, in a recent letter, stated that Cincinnati is doing the first piece of real work of any city in the country. Budgetary requirements were approved and the War Chest appropriated $50,000—$25,000 for the medical division and $25,000 for relief.

Briefly our plan was as follows. The city was divided into thirteen districts, organized to meet county demands as well. A central health station was established in each district, the personnel of which consisted of one physician, one nurse, and one clerk. The use of school buildings was sanctioned by the Board of Education. Most of our physicians, and many of the nurses employed, had distinguished themselves in the military service. In developing the medical program and in the selection of clinicians, we had the very helpful coöperation of the Cincinnati Academy of Medicine.

Standard methods were employed in all stations. Primarily diagnosis was our aim, first to discover and then repair, if possible, the damage done. As soon as a diagnosis was established, the patient was referred to his family physician, the district physician of the city, or a recognized clinic, hospital or dispensary, depending upon the financial status of the family. The work was highly constructive in character and every effort made to restore convalescents to their former independence and usefulness in the shortest time.

Many patrons whom we felt were well able to consult their family physician, applied at our clinics for examination, but investigation nearly always brought out the information that their physician "did them no good," "he didn't examine them," "he prescribed for them," when what they wanted was a thorough examination. Needless to say, these people were referred back to the family doctor.

Although the health stations were not designed for the treatment of patients, many cases where only instruction, supervision and perhaps a tonic were needed, were carried for a period of several weeks. Other cases were kept under observation for a short period and then referred. There was an abundance of malt and cod liver oil, syrup hydriotic acid, syrup iron iodide, saccharated carbonate of iron, and other simple remedies for the children and asthenic adults.

Arrangements for special work—surgical, X-ray, laboratory, Wassermans, electrocardiographs—were completed with the hospitals and Health Department so that the clinicians had all facilities at their disposal for confirmation of diagnosis. Venereals were referred to the Federal, State and City Bureau, and all tuberculous patients were cleared through the Anti-Tuberculosis League Dispensary.

In our campaign we had the assistance of some of our local insurance companies, notably the Metropolitan, whose agents listed families in which some member had suffered from influenza. This information was delivered to the nearest station in the agent's territory. This survey alone prompted a very large number of people to consult their own physician. The movement, of necessity, does not stand credited with such examinations.

Mayor Galvin spoke of the health crusade conducted by the Red Cross and Health Department as "one of the greatest reconstruction movements of the day," in an address before 700 insurance agents at the Gibson Hotel. (He was comparing the ravages of war with those of the unidentified pandemic.) "Many people who stayed at home, figuratively speaking, have an arm gone, a leg gone, or an eye gone, and they, too, are in need of reconstruction."

A people who are just recovering from a war, a pandemic of influenza, several liberty loans, Y. M. C. A. and Red Cross drives, will not be attracted by any public movement unless it has for them a personal appeal. We made a serious mistake by not having an intensive publicity campaign in advance, for in spite of generous press notes, it was five or six weeks before we were well under way. Intelligent newspaper publicity, splendid editorials, judicious distribution of placards and leaflets in factories, schools and department stores, flashes in the "movies," the enthusiastic neighborhood work of the nurses, all helped to popularize the health stations and stimulate patronage so much so that during the crest week, 1,024 people were examined.

The great majority of replies in response to our inquiry as to whether or not the health stations should be continued, were favorable and showed that the physicians of Cincinnati were in sympathy with the health crusade.

With the opening of schools, or just four months to the day after the inauguration of the health crusade, the health stations gave way to four night clinics which became part of community center work in the public schools.

During the first four months of operation, 13,772 influenza subjects were listed, 7,058 examined, and 5,624 (or close to 80 per cent) found to be in need of some kind of medical, surgical or dental interference. The number reëxamined from time to time—observation cases—totaled 2,015.

Under the caption "defects and diseases," the number of cardiac cases is rather high (643) and embraces the usual run of lesions from irregularities down through the functional and organic lesions. Careful examination of statistics bearing on the high death rate following preceding influenzal outbreaks, reveals the fact that not a small number of deaths were due to cardiac disease.

Following the epidemic last spring, we were attracted by the number of prominent citizens who died suddenly. Further inquiry invariably brought forth the history of an attack of influenza during the pandemic. Such issues being usually cardiac in origin, this was supposedly the cause in most cases. But what type of heart disease was responsible,—a myocardial infection, a conduction defect, or a serious valvular lesion? Further, could such a condition be diagnosticated in a routine way; and, if so, could an adjustment of corporal activity or other directions prevent?

These and other considerations prompted Dr. Julien E. Benjamin to make special cardiac examinations on selected cases complaining of cardiac distress. The electrocardiograph and polygraph observations will be published later in a special article. In his preliminary report Dr. Benjamin gives us some interesting data.

The greatest distress was noted among those who had influenza during the first wave in October. The symptoms complained of in most cases were inordinate fatigue or exhaustion, weakness, dyspnœa on slightly more than normal exertion, tachycardia and precordial distress.

The cardiac examinations presented

two definite points of diagnostic interest in many cases:

1. A cardiac rate above normal which did not return to the quiet rate three minutes after exercise.

2. A diminution in intensity of the first mitral sound, making it very difficult to distinguish the first from the second sound.

The majority of cases showed no organic heart disease. The few organic lesions which were detected, had existed for several years, probably aggravated by influenzal infection.

The number of tuberculosis cases is striking in this respect, that they are in nearly every instance new cases which for the first time have come to the attention of the Health Department. Of the 183 reported cases, 61 have been confirmed either by X-ray or sputum examination, while 122 cases presented sufficient clinical evidence to warrant a tentative diagnosis of "incipient pulmonary tuberculosis." Particularly well done was the follow-up of tuberculosis cases, which approached as nearly as is possible 100 per cent.

Among the pre-tuberculous (263) are included those with a little roughened breathing, flat chests, enlarged glands, positive Von Pirquet, but no pronounced auscultatory symptoms. We found by our experience, confirmed by many practitioners, that nearly 50 per cent of the children under five who had influenza, gave a positive Von Pirquet.

The asthenic group, so-called on account of the symptoms presented, are really a very interesting study. For the greater part under-nourished, with anæmia of more or less severe grades, lacking in physical strength and initiative, yet without any demonstrable pathology,—these cases frequently enjoyed a speedy return to normal with rest and a course of stimulating tonics.

Defective vision we have with us always; the diseases of the ears and eyes are in general affairs of long standing and not the results of an influenza infection; the hypertrophied tonsils and adenoids are expected to be legion, so that as far as the relation of these conditions just mentioned to the sequelæ of influenza is concerned, we can dismiss them as previously acquired conditions and only remotely, in some few instances, the results of influenza.

The large number of defective teeth indicate that the people still do not appreciate the value of good teeth, and periodical dental examinations are not the rule despite the intensity of the recent educational campaign.

The skin diseases presented nothing unusual, and the venereal diseases were quickly disposed of at the Federal, State and City Night Clinic.

The nose and throat men were quite active in their field, having performed 190 tonsillectomies and adenectomies, while glasses were obtained for 20 and surgical interference was undertaken in 43 cases. There were 174 patients examined by X-ray and 449 plates made.

Almost all of the nurses employed were women who had had experience in public health nursing. The clerks, men and women of a high order of intelligence, knew from the start that they were to have an important part in the work for beside keeping accurate records, it was their task to interpret our feeling of friendly interest to applicants.

The follow-up work was the most important part of the nurses' duty. Diligent effort was made to do constructive case work. Convalescents were referred to family physician, clinic or hospital, and the nurse kept in touch with the patient to see that the plan for the patient's welfare was carried out.

With few exceptions, the people have been cheerfully attentive to instructions.

Where material relief was needed, the case was reported to the Relief Committee of the Red Cross, following a complete social investigation.

Frequent meetings of the nurses and clerks, informal discussions, and a social hour stimulated interest in the work and gave all a broader vision of its possibilities.

The total cost for the medical division, in round numbers, was $17,942, leaving an unincumbered balance of $7,058 for the conduct of night clinics, educational publicity, or subject to transfer for material relief.

The unit cost per patient was $2.54; per examination, $1.97; per nursing visit, 47 cents.

The first meeting of the relief committee was held May 26, when the policy to govern the handling of relief was drawn up and adopted to meet needs created by the epidemic. Originally special relief workers were employed by the committee, but subsequently they were withdrawn and all requests for aid were handled through the Associated Charities, Bureau of Catholic Charities, and United Jewish Charities. Every application for aid from the relief fund was passed upon by the relief committee. None but emergency relief was granted until the patient had been examined at the health station or by a private physician and a written diagnosis presented. Individual budgets were made out for each family and the amount of relief commensurate with the need and management of the case by the attending physician.

Relief was granted to the full extent of the budget to those who had been widowed by influenza, where it could be shown that they had no means of support. If additional relief was needed, as in the case of old dependents and others who were restored to health, the applicants were turned over to the regular relief-giving agents.

Malnourished and anæmic members of families, even though they did not have influenza, were examined as a matter of prophylaxis and a plan worked out for health betterment.

Persons suffering from influenza, who were able to do light work, were placed and a sufficient amount of relief granted so that they might continue with light work at a smaller salary until they were restored to full working capacity.

Influenza patients who were physically unfit and where rest was indicated, were granted sufficient amounts to meet the family budget until the convalescent was fully restored to health. Some were sent to the convalescent home; others boarded in the country when the doctor so recommended.

Suitable employment for two or three days a week was provided for healthy widows who did not have more than three children and arrangements made for the proper care of the children while the mother was at work.

Special diets of milk and eggs were given to supplement whenever the doctor advised that this extra nourishment would hasten convalescence. Teeth, eyes and tonsils were attended to where it was shown that this treatment was necessary for full recovery.

All sorts of family adjustments were made. Convalescents were provided with transportation to the homes of relatives in other parts of the country who were able and willing to assume the responsibility of the families made dependent by influenza.

At the present time, relief is being expended at the rate of approximately $1,000 per week to 150 families. Social service care must, of course, go hand in hand with the medical treatment. It is

our aim to reconstruct socially each family, as far as that is possible, by the time the patient is well physically, so that the case when dismissed is cured in the highest sense of the term.

The improvement in health of convalescents varies with the individual and it is, therefore, difficult to say how much money will be required and over how long a period. The influx still exceeds the rate at which cases are being closed. Suffice to say that the beneficiaries of our survey will be taken care of by extra appropriations or through the regular relief agencies on supplemented budgets.

The American Red Cross Health Crusade in Cincinnati was successful, and undoubtedly its salutary effect will be reflected in future mortality tables.

A great factor in a movement such as the Red Cross Health Crusade is educational publicity. It must be publicity dressed up in the form of news. It must be something that the newspapers will be willing to publish because it has a news value. The average American newspaper has developed a laudable tendency to aid in such movements as public health crusades. All they ask is coöperation.

The main value of the newspaper publicity, however, was not so much in the splendid stimulation it gave the immediate work of the clinics, but in the far reaching effects we believe it will develop in educating the public to a periodical "health stock taking." That is one thing which we sought to emphasize during the publicity campaign. We advised the people to visit their family physicians for physical examinations and urged that they repeat these visits at regular intervals. And we believe that we have sown seed on fertile soil.

We have reached the needy influenza survivors who have applied, restoring many to health and independence by financial and physical reconstruction, and have, in a measure, prepared the people for the expected fall drive of influenza which many of us believe will be turned into a brilliant counter-offensive.

In compiling this report, I am exceedingly grateful for contributions from Dr. A. C. Geringer, Kennicott Brenton, Miss Alice Richard, Dr. Benjamin, Miss Louise Kuck, A. F. Sommer and Rudolph Benson, who were Associate Directors in the Health Crusade.

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Practical Training for Public Health Nurses.—In order to increase the available number of public health nurses, and to give these individuals definite, practical training, it is suggested that part of the training should be obtained in the service of municipal health departments. A system of coöperation between municipal health departments and nurses' training schools could be devised which would afford the pupil nurse the necessary practical training in public health nursing. The training should extend over at least three months and wherever possible over six months. The pupil nurse should be trained especially in child hygiene and in the preventable diseases. In child hygiene the nurse should have practical training in prenatal home visiting and the instruction of expectant mothers; in infant clinics; in midwife inspection and education; in the health supervision of children in schools, in the home, and in institutions. In preventable disease work the nurse should have experience in the home visiting and investigation of cases of communicable disease, particularly tuberculosis and typhoid fever; in clinics for tuberculosis, venereal diseases and industrial diseases. If possible she should also receive some training in food inspection and sanitary inspection.—Carl E. McCombs, M. D., *Modern Hospital*, Aug., 1919. (*M. P. H.*)

PUBLIC HEALTH PERSPECTIVE.

L. L. LUMSDEN,
Surgeon, U. S. Public Health Service.

Read before General Sessions, American Public Health Association, at New Orleans, La., October 29, 1919.

"Save 250,000 human lives in the United States in 1920!" is Surgeon Lumsden's slogan, and he backs it up by outlining how to do it. The world must have increase of man-power. Public health aid is essential. Needs are: whole-time health officers, effective local agencies and coördination of all agencies, and then the American spirit to "go over the top." : : : : : : : : : :

"Where there is no vision the people perish."

WITHIN the last twelve months the world has entered upon a period with potentialities of good or ill for its peoples such as before have not been presented since recorded history began. The free peoples of the world have won the war. Our battle cry was "Make the world safe for democracy." Democracy crowned with the wreaths of victory has been lifted into the saddle. This great American idea is triumphant. Majority rule through authority constituted by the people is to be tried on a scale never before dreamed of. The value of democracy to the world is to be determined at an almost bewildering rate. The competency of nations to maintain or to establish and maintain "Government of the people, by the people and for the people" is to be tested in the crucible of world crisis. Whether this period shall be recorded as "the period of great gain" or as "the period of great loss" depends on the individual and collective thoughts, decisions and actions of the peoples themselves.

Many ideas and plans which appeared good even as late as the years 1914 and 1913 will have to be laid aside as of ancient times. The need to do some things different and many things better is apparent. The urge to use more and better the instruments of proven value which are at hand to restore the losses caused by and coincident with the World War is already strong and widespread among the peoples and probably will become more so. The surface indications now suggest that along many important lines for human welfare more progress will be made within the next five years than one in the old past of 1914 could reasonably have expected to be made in fifty years.

In the present period of urgent necessities and wonderful possibilities the American nation, as the great pioneer in modern democracy, has within the wide limits of its powers and resources a great opportunity and a large responsibility. There was never a time when clear perspective and common sense were more needed among our people.

INCREASE OF MAN-POWER NEEDED.

The estimates of the loss in blood and treasure caused by the World War stagger the imagination. For more than four years the energies of many powerful nations were concentrated on producing and putting into action engines of destruction of appalling efficiency. Toward the end of the active period of the war a pandemic of influenza-pneumonia began its sweep over the world and added its frightful quota of destruction. The number of

persons killed by this pandemic within a few weeks in the United States exceeded by more than tenfold the number of American troops killed by wounds received on the battlefields of Europe. Some of these losses can never be repaired. Others can be.

The world appears solvent. With the knowledge gained from disaster the strong and sensible may make a great leap forward into the light. Of all peoples, we of the United States should profit from the lessons of the war. We have discovered our strength. We used that strength gloriously to help win the war. We have discovered also some of our weaknesses. Some of these weaknesses which could not be attended to during the war can be attended to now. We should undertake to correct them.

For good living to be restored a great period of construction must follow the awful period of destruction through which the world has recently passed. Every day's delay in the beginning of the program of construction is disastrous. Every obstacle to construction which can be removed by reasonable measures should be removed. The United States has a big part to do in the program of construction and production needed. We must make good.

The welfare of our own people and that of other peoples whose welfare reacts upon ours will depend largely for the next few years upon the resources of the United States. Our resources though large are not unlimited. They must not be wasted. They mûst be developed and used sensibly. The most important of our resources is our human power. Upon it depends our ability to use our other resources advantageously. We have been prodigal with this resource. We have failed to develop it as we should and we have wasted it shamefully.

Public Health Advancement Essential.

Now, as never before in time of peace, American brain and American brawn are needed to do work. If we fail, the world will fail, and civilization will slip back. In the period in which we are now entering we have an unparalleled opportunity to conserve and to develop our human power. The critical need for public health advancement in the United States was never more obvious than it is now. The psychology of our people generally seems more favorable than ever before for a nation-wide, constructive business-like program of public health work.

One of the startling discoveries during the war was that more than 30 per cent of our men between the ages of twenty-one and thirty-one are physically defective to such a degree as to be unfitted for arduous military service. A large proportion of the physical defectiveness found among our young men drafted from all parts of the United States—rural and urban—was due to preventable diseases and easily correctable conditions. The cross section of our health condition furnished by the physical examination of the draftees presents evidence which should be convincing to even the most obtuse that we—and by "we" is meant the individual citizen, the community, and the local, the state and the national governments—have seriously and fearfully neglected the most important factor in our national development, our human power. We should profit from this lesson of the war. Upon the business-like attention which in the future—and in the immediate future—we devote to our public health depends largely our opportunity to develop a nation capable of meeting the crises of both war and peace and of demonstrating to the other nations of the world the value of democracy.

Some of our public health enthusiasts point with pride to the records showing that in the United States in the nineteenth century the average life increased from thirty-three to forty-two years. On analysis of these records, however, it appears that the gain was largely through the saving of infants. The saving of babies is important, but from the standpoint of the nation the saving of adults equipped at community expense with experience and knowledge to think straight and to work hard is even more important.

In our progress along many important lines in the last quarter of a century the hygienic advancement of our larger cities has been quite gratifying, but hygienic advancement in our smaller cities, towns and rural districts has been remarkably lacking. From detailed sanitary surveys of extensive representative rural districts conducted by the United States Public Health Service within the last few years,* it has been determined that at less than 2 per cent of the rural homes in the United States are the sanitary conditions reasonably good in the most essential respects. Certain diseases which are caused by infections spread from person to person are, notwithstanding the sparser population, much more prevalent in our rural sections than in our cities. Hookworm disease and malaria are now diseases almost entirely of rural origin. In many sections of our country typhoid fever and dysentery are more prevalent in the rural districts than in the cities. Tuberculosis is appallingly prevalent in our farming communities. Infections of the respiratory tract conveyed largely through unnecessary personal habits are widespread. These diseases incapacitate persons for useful, profitable labor. They take the joy out of living. They cause untold human suffering and much premature death. And they are preventable!

* Public Health Bulletin No. 94.

The annual economic loss to our nation from preventable disease and from physical and mental inefficiency resulting from correctable conditions has been variously estimated in hundreds of millions of dollars. In this time, of all times, we cannot afford unnecessary waste of our vital capital. To prevent such waste to a reasonable degree, a radical advancement in our public health procedure at this time would be justified *provided*—and "provided" is in italics—the gain will exceed sufficiently the cost of the health measures, and *provided further* that the investment of time, energy and money for health work will yield a dividend sufficiently large when compared with the dividends which could be realized from an equivalent investment for other lines of important work. With the burdensome taxes now upon us, and to remain upon us for years to come, and with the critical need for many important lines of work, careful attention should be given to the nature of the investments which may be made with both our private and our public funds. A fund invested in well administered health work will yield, according to conservative estimates, a dividend of about 1,000 per cent. Such a dividend looks "right good" even in the hardest times.

Feasibility of Public Health Advancement.

The value of reasonably administered health work on an adequate or a fairly adequate scale has been demonstrated under a wide range of conditions—both urban and rural. A notable example was the health work in the Panama Canal Zone which made the Isthmian Canal possible.

The recent health work within and around the cantonments and the war-industry establishments in the United States gave results of tremendous immediate value from a war-time standpoint

and of some value as a demonstration from a peace-time standpoint. The work in the zones around the camps was conducted by augmented and coödinated forces of the United States Public Health Service, of the American Red Cross and of state and local health departments. The continuation through 1919 of this work even on a considerably reduced scale would have resulted, according to all the indications, in the establishment of a number of permanent units of sanitation which in peace-time would have been of large national value as demonstrations. A request made by the Public Health Service and approved by the Treasury Department for a sum of $850,000 to continue this work and the other activities of the Interstate Quarantine Division of the Service in the fiscal year, July 1, 1919, to June 30, 1920, was answered by Congress with an appropriation of $25,000.

From the small amount of work as yet done in the United States in rural sanitation, generally conceded to be one of the most difficult and certainly one of the most important phases of health work, the results have been entirely encouraging. In view of the number of requests from state and county health departments for coöperation in rural health work and in view of the urgent importance of such work to all the people of the United States, the Public Health Service, with the approval of the Treasury Department, made a request for $500,000 with which to conduct on a reasonable scale in the fiscal year 1920 a well-tested plan* of coöperative demonstration work in rural sanitation. This request was answered by Congress with an appropriation of $50,000.

Thus the appropriations for these cooperative activities of the health agency of the national government in the period of this fiscal year with its remarkable potentialties for progress were reduced to what was called "the pre-war basis." That appropriations for other activities of the national government, however, were not reduced to a "pre-war basis" is indicated by the fact that for the general activities of the national government in the fiscal year 1920 appropriations totaling over seven and a quarter billion dollars have already been made—and more are to be made—as against $1,114,937,012.02 for the last pre-war fiscal year 1916.

Our governmental appropriating bodies —national, state and local—appropriate within the limits of the funds available for different governmental activities largely according to the apparent popular demand for each of the activities. This seems natural and proper under government by the people. Until our people generally become awakened to not only the absolute value but also the relative value of public health work our legislative bodies can not be expected to grant the authority and the funds necessary for public health advancement on a reasonably adequate scale. Therefore one of the chief duties of the health official is to convey to the people the facts from which properly may be drawn a popular public health perspective.

Business-like Procedure in Public Health Work Necessary.

As public health work affects all the people it appears logical for it to be conducted essentially as governmental business. The establishment and maintenance of reasonably adequate governmental—local, state and national—health agencies properly coördinated to function in a common-sense, business-like way in every community in the United States is so logical, in fact, that its realization

* Public Health Reports, Vol. 34, No. 45, pages 2529 to 2538, of November 7, 1919.

eventually may be expected. That the cost of public health activities be met with funds obtained from equitable taxation of the people seems right. The civic or the philanthropic organization upon entering the very appealing field of public health work should function with and through official governmental health agencies and carry out its phase or phases of health work with a special view to permanent augmentation of official health agencies which are wanting in efficiency. If two or more agencies undertake independently to conduct the same public business in the same community, waste of money, loss of motion, friction, confusion and injury to the general cause are almost sure to result.

Public health work should be conducted not as a fad or a fancy, or for the special benefit of any particular set of people, but as a vitally important business for the general and permanent benefit of all the people. If our public health business in the United States cannot be conducted efficiently and economically by our local, state and national branches of government, our democracy will be a failure—and that is unthinkable. To our nation no business is more important than is the business to establish and maintain throughout our broad land conditions which will make for the health, the mental and physical vigor and the happiness of our men, women and children. Our men and women returned from the battlefields of Europe can be expected to insist upon efficiency in the public business for the correction of unwholesome conditions such as heretofore have been tolerated.

For success in the administration of the public health business broad constructive policies and careful attention to details are necessary. Each phase of work should dovetail in with the other phases of work carried out. The sequence in which the different phases of work are concentrated upon is important. The science of hygiene is like the mystic tree of old "which bare twelve manner of fruits and yielded her fruits every month; and the leaves of the tree were for the healing of the nations." The health officer may become overwhelmed with the opportunities for needed service and flounder. He should take inventory of his stock. He should consider when and where the different lines of his stock are most needed and are likely to be used to the most advantage. He should endeavor continually to make every dollar of his health fund* and every unit of strength of his health force yield the biggest possible dividend. In short, he should use common sense and proceed in a business-like way with the vitally important business which he has at hand.

The administration of public health work is an all-absorbing business. Much success cannot be expected from the administration of a part-time health officer. A conservative estimate is that with factors of personal equation equal one whole-time public health officer is worth more than twenty part-time public health officers. Our larger cities gradually are realizing that whole-time personnel is essential to advantageous health business and that an annual investment of as much as 50 cents per capita for the conduct of the health business is good business. In our rural districts, however, whole-time health organizations capable of conducting even a fairly adequate degree of health work are very exceptional. The bulk of our detailed health work should be conducted by official local agencies. The weakest links in our chain of health machinery are in our extensive rural districts. Here they should be strongest. What concerns importantly the sixty million people living in our rural communities surely should be a

* Chapin, Charles V., "How shall we spend the Health Appropriation?" American Journal of Public Health, Vol. 3, 1913, page 202.

matter of concern to every state government and to the national government. The cost of health work in the rural district is relatively more than in the city. Some of our rural districts are not yet financially able to bear easily the cost of reasonably adequate health work. To bring about without loss of critically important time reasonable health work in our rural districts some assistance from the state governments and the Federal government appears in order.

Augmentation and Coördination of Health Activities Indicated.

In view of the need for and the importance of public health business in the United States it is difficult to understand why the American people with their characteristic energy have not gone into this business in a business-like way. As yet we have but played with our public health problem. We have no more than scratched the surface of the field of certainties in public health work. Perhaps those who know something of the possibilities of public health work have not pressed the matter with sufficient urgency to evidence sincerity of purpose and to carry conviction to the minds of the American people.

Only a few of our larger cities, only a few of our states and less than one half of one per cent of our rural counties and townships have health departments approaching adequacy. Our national government has proceeded constructively but quite conservatively in developing a Federal agency, the United States Public Health Service, for work in the field of public health.

Governmental agencies—national, state and local—created for other purposes, recognizing the need for public health work and the want of proper agencies to do the work, from time to time extend or endeavor to extend their activities more or less distinctly into the field of public health. Such procedure in some instances may be of temporary value, but it frequently causes confusion and in the long run is apt to hinder rather than help the development of specific properly equipped governmental forces to carry out in a business-like way a constructive public health program which would be of permanent value. Public health work is so comprehensive that it reacts upon and is reacted upon by most other lines of public work, and a certain amount of duplication or overlapping of activities of governmental agencies seems inevitable. Much of the duplication is unnecessary and disadvantageous, however, and could be eliminated by administrative coördination.

From time to time, with a somewhat remarkable periodicity, agitations are begun for reorganization of our so-called "health agencies." Duplication of health activities has not yet appeared so common or so serious as lack of health activities. Therefore, augmentation seems more pressingly indicated than reorganization or coördination. With machinery set in operation for ample production the problem of distribution will become less and less difficult. In our public health field the local, the state and the national governments have respectively certain clearly defined functions which are indicated in our general scheme of government. In the so-called "twilight zones" in which any or all of the three may function a plan of coöperation in extent and kind agreeable to the coöperating agencies is practicable. Whatever difficulties may arise in connection with such coöperation will be due to factors of personal equation which, let us hope, in all instances will be remediable.

AN OVER-THE-TOP DRIVE SUGGESTED.

The responsibility for health conditions rests with the individual citizen, the community and the local, state and national governments. With government for the people the health of the people, the most important item in the general welfare, should be a matter of constant concern. The local and state governments under their police powers have ample authority to perform. The national government under its constitutional authorization (a) to regulate interstate commerce, (b) to lay and collect taxes, and (c) to raise and support armies appears to have opportunity to do its proper part in public health work. Some sanitary measures can be carried out more economically by concerted community action than by independent individual action. The observance of the most essential hygienic principles,* however, depends largely upon the convictions of the individual citizen who, under our government of the people, is the biggest possible factor for the advancement of our national welfare.

Our public health interests have not yet made the proper appeal to our average individual citizen. When they do, and not until they do, will reasonable progress in our public health business be made. American psychology demands an objective. With an objective our boys went over the top on the battlefields of Europe and with their bayonets and with their blood wrote the greatest page in world history. The same spirit, which moved every red-blooded American to sacrifice and to work and fight to win the World War for civilization and decent living, is available now and by a proper appeal can be stirred into effective action in a war against physical inefficiency and preventable disease among our people.

I suggest as a public health objective *the Saving of 250,000 Human lives in the United States in the year 1920.* In that year a national election is to be held. In the political campaign the people will be told much about matters supposed to concern them importantly. We have two months in which to organize the campaign of 1920 for the saving of human health and human life. This campaign may be organized and conducted along the same lines as were the Liberty-bond and the food-conservation campaigns and the Red Cross drives. Every civic and official body in the United States can begin at once to consider ways and means for this health drive. The American Public Health Association seems a proper organization to initiate the movement. The carrying out of such a plan would have an educational result which could be expected to fix in the minds of the people the salient facts of hygiene and to create a general popular demand for the continuation of reasonable health work throughout the United States. This way of attacking our national health problem may appear to some as highly fanciful. But if the campaign be organized sensibly and be conducted unselfishly, I verily believe that it will succeed. We do things not especially because they are logical but because they are psychological. The psychology of our people now demands reconstruction to make up the losses from the war. This health drive would be by and for our own nation. During the war our average community made a great discovery—its competency to bring about concerted individual action to do things worth while. Our community, state and national consciousness is ready for organization. Our health interests reach down to the bedrock of human existence. They are woven into the warp and woof of our future. Nothing is more important to us. Much that has been impossible before is now within our grasp. To go over the top is the American way and the American way is good.

* Public Health Reports, Vol. 34, No. 44, pages 2432 to 2433, of October 31, 1919.

NEED AND METHOD OF COÖRDINATING FEDERAL, STATE AND LOCAL HEALTH AGENCIES IN PROMOTING INDUSTRIAL HYGIENE.

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Chairman's Address before Section on Industrial Hygiene, American Public Health Association, at New Orleans, La., October 28, 1919.

This author says that what the country needs is not extension of Federal authority so much as health education of the people to support what exists. The U. S. P. H. S. has already all the power that may constitutionally be given to a Federal health agency. It has a distinct industrial health program, and all it needs is good financial support.

THE most cogent fact we have learned from the war is that man-power is the basis of national prosperity. Yet, while it is the basis, it represents potential energy only. To make man-power kinetic we must have the means to apply it under favorable and effective conditions. We all know that it is not mere numbers alone that make a nation great, but the kind of men and women in it. As hygienists, this brings us at once to the consideration of the health of the nation as an essential to enable us to convert fully the potential energy of its man-power into kinetic energy.

I need hardly remind you of the fact that there are some 45,000,000 occupied persons in the United States, of which some 25,000,000 may be classed as industrial workers. You are all familiar too with the story told by the draft examinations which showed that some 34 per cent of the males of military age were unfit for military duty because of physical defects and diseases. As the average age of the industrial worker is higher than that of the population group examined for the draft, and the percentage of physical impairments tends to increase rather than to decrease with age, it may be expected that the number of physical impairments in the industrial group of the population is higher than it was among those examined for the draft.

Moreover, besides the industrial health hazards we had before the war, we have seen the development, because of war conditions, of new industries, such as the dye industry, which are introducing new health hazards into our industrial life. So, while on the one hand our industrial development tends more and more to expose the individual to health dangers, on the other, we are coming steadily to the realization that work should prolong rather than shorten life, that working conditions should conserve rather than impair health.

We know that, in the past, we have been prodigal of our industrial man-power. We have thought too much in terms of production of the moment: so many millions of tons of steel per annum; so many billions of dollars of manufactured products; and these, largely produced by highly developed automatic and semi-automatic machinery, jigs, fix-

tures, and a highly specialized series of operations, most of which could be carried on by unskilled, or at most, by semi-skilled labor. But now, as we face the period of reconstruction, the healing of the gigantic wounds of civilization, we do so with a better concept of the value of the individual to the nation, a fuller realization of the utter folly of permitting needlessly unhealthful conditions to sap the man-power of the country, to relegate the individual to the scrapheap at a time in life when he should still have many productive years before him.

The need is, therefore, imperative for a constructive national policy for the better protection and conservation of industrial health. What we must aim at is the application of the principles of public health science to the field of industry so as ultimately to secure for all workers practically the same measure of health protection no matter in what part of the country they live. It is evident that, in attaining this end, Federal, state and local health agencies must play an interlocking and coördinated part in improving health conditions, so that overlapping may be prevented, no power usurped and yet each governmental agency perform its full duty.

It is my purpose to discuss briefly possible Federal activities in connection with state and local governmental agencies. It will not be possible to discuss the exact scope of the functions of these separate agencies of government independently as they are necessarily so related and intertwined that this is impracticable.

Commencing then with the Federal government, this has a most important part to play because improvement of industrial health, having a profound influence on national welfare, is a national concern. I need hardly remind you, however, that the extent to which the Federal government may act is limited by the constitution. Under these limitations the powers of the Federal government are investigative, advisory, coöperative, and, to a certain extent, regulatory. So far as regulatory powers are concerned, these are not fully defined. Thus, the Federal government has certain regulatory powers, particularly in relation to taxation, the control of maritime and interstate traffic, the spread of disease through interstate channels and matters concerning the national defense. These matters involve the exercise of the Federal police power. Yet, we all know that under usual conditions the intrastate enforcement of regulations for health protection is accomplished by the police power of the states. This is a feature of the American system of government, and, generally speaking, when the Federal government does exercise sanitary police power in intrastate matters, it does so at the request of a state and with power voluntarily delegated to the Federal government by the state. In reality the regulatory power of the Federal government is coëxtensive with public opinion. If in the future public opinion demands an extension of the Federal powers of regulation, in so far as health matters are concerned, we may expect either a broader interpretation of the constitutional powers of the Federal government, or such constitutional amendments as may be needed.

But I wish to emphasize, in this connection, that in our country what we need is not so much an extension of Federal authority in health matters, as the development of a sense of responsibility for good health conditions in the people of the state and locality. It is the development of this sense of responsibility which will enable the Federal government to play its really powerful and useful

part in improving health conditions generally.

Take the existing health powers of the Federal government: these in the main are exercised through the United States Public Health Service, although, as you are aware, other Federal bureaus, such as the Bureau of Chemistry in the Department of Agriculture, the Children's Bureau and the Bureau of Labor Statistics in the Department of Labor, have activities more or less related to the public health.

I wish especially to point out, however, that the United States Public Health Service is already clothed with all the power and authority which, under the Constitution, may be given to a Federal health agency. The only limitations on its activities are constitutional limitations and the extent of the appropriations granted by Congress.

Under these powers the Public Health Service is authorized (a) to investigate any and all disease-producing conditions; (b) prevent the spread of disease through interstate channels; (c) prevent the introduction of disease into the country from without; (d) coöperate with and aid state and local authorities in carrying out health measures; (e) disseminate information to the public.

With these powers the Public Health Service may perform the following important functions in a national program for improving industrial health. This program has already been published in supplement No. 36 to the *Public Health Reports* of May 9, 1919, as part of a general health program to meet after-the-war needs proposed by the Public Health Service. This program was presented to Congress by the secretary of the treasury with an urgent appeal to provide the funds for carrying it out. So far, Congress has not appropriated the funds.

The section of the program dealing with industrial health is as follows:

(a) Continuing and extending health surveys in industry with a view to determining precisely the nature of the health hazards and the measures needed to correct them.

(b) Securing adequate reports of the prevalence of disease among employees and the sanitary conditions in industrial establishments and communities.

(c) National development of adequate systems of medical and surgical supervision of employees in places of employment.

(d) Establishment by the Public Health Service, in coöperation with the Department of Labor, of minimum standards of industrial hygiene and the prevention of occupational diseases.

(e) Improvement of the sanitation of industrial communities by officers of the Public Health Service, and coöperation with state and local health authorities and other agencies.

(f) Medical and sanitary supervision by the Public Health Service of civil industrial establishments owned or operated by the Federal government.

Let me supplement this program by the following brief discussion of its features:

Health Surveys of Industries.

While the general enactment of compensation laws has fostered to a considerable extent the study of industrial accidents and their causes, and is rapidly fostering a movement to inaugurate, on a nation-wide scale, measures for the rehabilitation of industrial cripples, even now there is little actual information available for the United States of the real occupational hazard, apart from accident, and the weighting in order of relative importance of their underlying factors. Federal and state agencies have made intensive studies of certain industries, for instance, the lead, steel and chemical industries, but surveys of truly national scope are still lacking.

Evidently it is not sufficient to study an industry locally. Surveys must be extended to cover all typical geographical locations of the industry under consideration in order to determine the differences, if any, of its essential occupa-

tional hazards because of variations in location, type of management, provisions for health protection, type and degree of local health organization and the like.

Besides the crying need for a comprehensive knowledge of our present industrial fabric we must remember that many new industries have been established as a result of the war which will become permanent features in the United States. It is essential to familiarize ourselves with these industries from the standpoint of industrial health.

Industrial Morbidity Reporting.

It is superfluous for me to dilate before this section, on the importance of industrial morbidity statistics and their indispensability in any serious attempt to improve the industrial health of the nation. While occupational diseases have been made reportable in a number of states, the reports secured up to the present are lamentably casual and desultory. So long as such reports rest upon the voluntary act of physicians, and so long as physicians themselves are interested more in the treatment of diseases than in their causes, advance will necessarily be slow.

It is evident that the United States Public Health Service may play a most useful part here by stimulating and aiding in the collection of such statistics and in acting as a clearing house for the dissemination of the information so obtained.

Real progress will only be made, however, when assistance can be given directly to states to enable them to collect the information and forward it to the central office in Washington. In view of the fact, however, that the police power, in the regulation of intrastate health matters, is exercised by the states, it is most desirable that the primary collecting agency should be the state, aided and stimulated by the Federal agency.

Adequate Systems of Medical and Surgical Supervision of Industrial Workers.

So much has been said and written on this subject that it is unnecessary for me to go at length into the need for adequate systems for the medical and surgical supervision of industrial workers.

I only wish to emphasize that the keynote of such systems is health service. Above all, it is not a means to select the fit, and to reject the unfit, but an effective instrument in the proper application of national man-power by inducing a positive condition of health in 100 per cent of the workers. As part of such systems of medical and surgical supervision, I can fore-shadow the general establishment, in industrial centers, of industrial clinics to which cases may be referred by the medical organizations in plants.

It is evident that such health services are primarily to be established by industries themselves. By their establishment we sense the recognition on the part of industry of their share in the responsibility for improving industrial health. The industry helps the worker to keep well so that the nation, the industry and the individual are all benefited. This sense of responsibility is felt, and health services are actualities in large numbers of progressive establishments already.

Yet such projects may stand on a permanent and nation-wide foundation only when they fill existing needs without superfluity. What the Federal health agency may do best here is to study and standardize such systems, outlining the best methods, and creating a demand for the qualified personnel necessary for carrying these into effect.

States may help by exercising their police power, in framing regulations for

such services, and in coöperating with industrial communities in establishing industrial clinics.

Establishment of Minimum Health Standards.

The necessity for minimum health standards with which to work is self-evident. Much of state legislation relating to the protection of industrial health is vague in its specifications.

Much research is still required to formulate practicable standards for existing industries, and to keep pace with the introduction of new industries and new processes. I need hardly remind you that the Federal government is the standard-making body for excellence. It is without bias. It desires nothing but the truth. So far as appropriations have permitted, some work of this character has already been begun by the Public Health Service. If it is to become comprehensive in its scope much greater appropriations are required than have hitherto been granted by Congress.

Improvement of the Sanitation of Industrial Communities.

We have seen that, under existing law, the Public Health Service is empowered to aid and coöperate with state and local health authorities in improving health conditions. Congress has already made modest appropriations to enable the Public Health Service to coöperate with these authorities in improving rural health.

The results in rural districts, where Federal aid has been extended to build up a local health organization, have been highly satisfactory, and often spectacular. Moreover, instead of increasing local dependence upon Federal aid, it has had the effect of stimulating these rural communities to extend and perfect the health organization the government has assisted them to establish.

I believe that a similar system applied to industrial communities, in coöperation with states, will aid greatly in improving the insanitary conditions all too prevalent in many of our industrial centers. Moreover, the coöperation of the Federal government in such enterprises is abundantly justified because the benefits reaped are not solely enjoyed by the community but by the nation as a whole.

Civil Industrial Establishments Owned and Operated by the Federal Government.

Finally, I should say a word about the medical and sanitary supervision of civil industrial establishments owned or operated by the Federal government.

During the war, the number of these was greatly increased. Since the armistice, however, the number, while exceeding that of pre-war times, has considerably diminished. While we were at war, the Public Health Service supervised the sanitation and medical service in as many of these establishments as possible, but was much handicapped because of the great shortage of medical personnel.

Since the Federal government is the greatest employer of the country it is but fitting that it should be a progressive employer and do for its employees what any progressive private corporation would do. Yet it must be admitted, up to the present time, the provisions made for the sanitary and medical supervision of the civil industrial establishments owned or operated by the Federal government fall below the standard maintained by numerous private corporations.

The results obtained by the Public Health Service during the war in the sanitary and medical supervision of such establishments are abundant justification for their continuation and extension. It is earnestly to be hoped that the way will be found to enable the Federal govern-

ment to become a model as an industrial employer for all private corporations.

Such then is the program of the United States Public Health Service for the improvement of industrial health. We have seen that this consists essentially in investigation, leadership, advice, education, coördination of effort and coöperation. The intention is to supplement, not supplant state and local government. The authority under law to play this important part is already in existence; all that is needed is money and the acquisition and training of the necessary personnel.

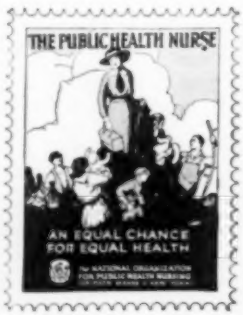
There is, at present, in the states and communities a great need for the coördination of their own health activities, so far as the improvement of industrial health is concerned. While general health functions are exercised by state health departments, and in communities by local health departments, supervision over industrial health is exercised by state industrial commissions, state departments of labor or state departments of factory inspection. In local health organizations little or no provision is made for the improvement of working conditions. There is great need for change and improvement here.

Since the public exercises, as a rule, its police and regulatory powers through the state machinery, the pressing need, so far as states and communities are concerned, is to improve and coördinate their organizations to this end. The program of the Public Health Service, if carried out in the manner discussed, will provide a basic knowledge of conditions requiring remedy, and furnish minimum health standards. If states and communities assume their share of the responsibility, they will provide the funds and machinery to put these standards into effect.

In this manner, so far as geographically practicable, uniform working conditions and effective means for the conservation of industrial health will prevail. Yet we must keep ever in mind that the purpose of any health organization, Federal, state, or local, is not to multiply upon the statute books unnecessary laws, nor to develop political organizations, but to become administrative agents of the public purpose, now approaching realization, to translate into deeds the newly developing sense of responsibility for local health conditions, to help realize, so far as possible, uniform health conditions, and a favorable environment for the growth and development of the present and future generations.

AN EQUAL CHANCE FOR EQUAL HEALTH.

Here is an outward and visible sign of a good deal of inward activity, for the National Organization for Public Health Nursing has a number of useful activities. One of the newest of these is a Library Service for Public Health Nurses. The Organization maintains a central library at its offices in New York City in which are filed thousands of health pamphlets, bulletins, reports, clippings and reprints. A package of pamphlet material may be borrowed by any interested person or group. Packages are made up to suit any specified needs on application to the librarian. These will be sent by mail and may be retained a reasonable length of time.



Another activity along the same line is the maintenance of State library centers in nearly all the states. These centers contain assortments of books helpful to those in the nursing profession or in health work, conveniently placed for immediate use.

The illustration is of the poster-stamp, available as a poster to be seen from afar, or as a little stamp for use in correspondence, bearing the slogan, "An equal chance for equal health."

PUBLIC HEALTH WORK IN INDIA.

II. A REVIEW OF THE NATURE AND PROGRESS OF SANITATION.

HARRY N. JENKS, B. S.,
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For a type of Hindu conception of sanitary precaution, Mr. Jenks notes three kinds of "boiled" water: first, water merely heated till it steams; second, really boiled, but then strained through dirty cloths, and, third, really boiled, but cooled by adding raw water. Such practices and the distribution of drinking water in leather sacks, customs universally observed like the great gatherings of pilgrims, together with religious prejudices make sanitary progress very slow. : : : : : : : : : : : : : : :

IN the preceding article an endeavor was made to describe in broad outline the outstanding features of the social and economic life of the peoples of India in their relation to the sanitary problem. From a consideration of this subject it was seen how intimately associated with the question of public health are the native habits and customs, as embodied in the caste system and kindred religious beliefs and practices. The opinion, held by public health workers in India, was summarized in the statement that any extensive development of sanitation must necessarily await the upbuilding and modifying influences brought into play by the general education of the masses, the introduction of Western methods and materials, and the raising of the economic status of the people.

Having thus caught a glimpse of the background of Indian conditions, it is thought that a short account of certain phases of the actual health work being done in India will not only be more readily appreciated but will also possess an added interest.

RURAL SANITATION.

Under this heading are grouped the work undertaken by government in the districts surrounding the centers of population, the sanitation of the European "cantonments" in the native cities, and sanitary measures carried out by private corporations and by individuals in camps and on estates.

The various local governments of India are accomplishing much for the cause of public health through the efforts of Indian Medical Service officers working under the direction of the sanitary commissioners. This service is rendered by means of the collection and publication of a great mass of information regarding the origin and control of infectious diseases, as well as through personal assistance in the emergencies arising from the appearance of these diseases in epidemic form. Up to the present, however, as has been pointed out by Boyce, no concerted movement has been made looking toward the practical eradication of any specific disease in India. Malaria is the great scourge in rural communities, particularly in the "jungle" stations, but no general action has yet been taken in its control comparable to the stamping out of yellow fever in the West Indies.

In each important city throughout India, where there is a military post, the garrison and such other Europeans as may be living in the city, reside within a restricted area known as a "canton-

ment." The cantonment is in effect a miniature European town within the native town, or, more frequently, on its outskirts. It is so laid out as to offer the greatest amount of security in case of rebellion, and to afford the best possible conditions of sanitation. In the more important stations, such municipal improvements as lighting, water supply and sewerage are provided, in the order enumerated. A system of conservancy is adopted and carried out by the community as a whole, or by the owners of the individual bungalows.

Throughout India, sanitary practice favors the latrine-trenching method of disposal of excreta, and even in the larger cities, public comfort stations, embodying a combination of latrine and septic tank, are advocated. Pit privies are in general condemned by local sanitary authorities, on the ground that they are too liable to contaminate water supplies and that in most cases the soil is unsuitable for the proper disintegration of the pit contents. The use of water by Hindus for ablution purposes is undoubtedly a serious obstacle in the way of the proper operation of a privy of the pit type, as the contents of the pit cannot be kept dry, unless the soil is very porous. The use of commodes in the European bungalows is a striking feature of the conservancy methods in vogue.

The railways of India are showing much foresight in providing sanitary arrangement for their labor camps. Special care is given to the proper housing of labor at all railway centers. Attention has been directed to the fact that borrow pits near the right of way may serve as breeding places for mosquitoes during the monsoon season; accordingly efforts are made to avoid opening up such pits in the vicinity of towns along the line.

During recent years serious thought has been given to the peculiar problems that are encountered in the sanitation of mining camps, tea estates, etc. The chief problem in most instances in one of malaria control, while of equal importance is the adoption of sanitary methods of conservancy. The writer was for some time in charge of the sanitation of a large mining town in Burma and had the experience of witnessing in the tropics the same satisfactory results that follow the introduction of up-to-date sanitary measures in similar communities in the United States.

Sanitation of Indian Cities.

The duties of the sanitary staff in an Indian city are more extensive than those assigned to the local board of health in our American urban communities. In the enforcement of the usual ordinances relating to public health and the control of infectious diseases, the work of inspection forms a large part of the routine operations. The actual number of qualified inspectors needed is much greater than those required in an American municipality of the same population, because of the necessity of closer supervision of the work and on account of the degree to which the work is subdivided in conformity to caste and occupational distinctions.

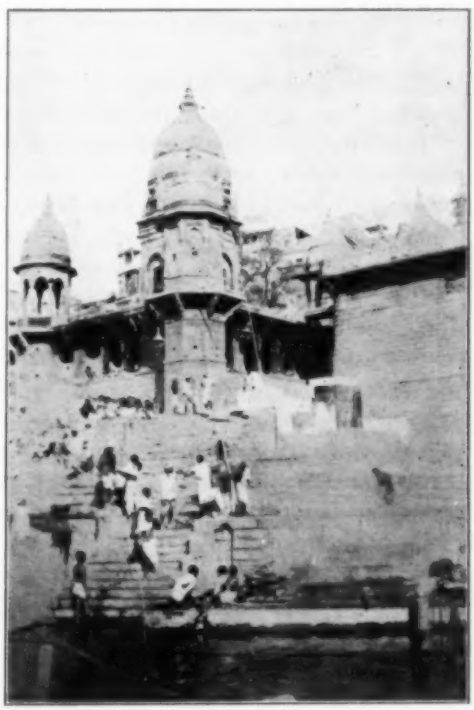
In addition to these routine activities, the health department of an Indian city is directly concerned with such matters as the water supply, sewage disposal, and the collection and disposal of refuse. The first group of activities mentioned need no detailed description as they do not differ materially from those undertaken by public health organizations in American cities. The questions of water supply and the disposal of the city's wastes, however, present a number of peculiar problems that merit further consideration.

Water Supply. The question of water supply in all centers of population where an attempt is made to furnish water by modern methods is a most serious one, both as to quality and quantity. Except in the largest cities where the municipality can afford to develop an adequate supply, it is usual to lay a few mains in the principal streets, with hydrants at convenient intervals from which the native paniwallahs or bhistis fill their leathern sacks (mashaks) for distribution throughout the neighborhood. In country towns particularly, the street hydrants form centers of attraction for the natives who gather around for a prolonged bath of an evening. As the Indian cannot resist the temptation to let the water run during the whole course of his ablutions, a problem in water waste prevention arises, as well as one of keeping mosquito-breeding puddles from being made in the immediate vicinity.

Municipal water supplies, unless derived from wells so protected as to yield a safe drinking water, must be subjected to some form of treatment, on account of the persistent contamination which every important stream in India receives. English sanitary engineering practice favors slow sand filtration as the standard method of water purification. The supply for Bombay is derived from three lakes not far from the city, and is filtered before being pumped into the distribution system. The Calcutta supply is obtained from the Hooghly River; settling tanks and slow sand filtration are employed in its treatment.

Even in the largest cities, much of the water consumed by the inhabitants is derived from private wells. These are sunk anywhere that suits the owner's idea of convenience, which in many instances is in the ground floor of the dwelling. During cholera outbreaks, the protection of these wells represents an immense task for the sanitary staff.

For small supplies, such as exist in cantonments and hill stations, mechanical filtration has found a field of usefulness. The filters are manufactured in India* and are of either the open or pressure type. The chlorination of water is as yet practically unknown in India. This is due in great measure to the comparative lack of experience that British water works men have had with this form of treatment. At present no machines are on the local market and chlorine is difficult to obtain. The writer feels, however, that the advantages and applicability of chlorination of the supplies of



The famous burning ghats at Benares. Here the bodies of the dead are cremated according to the ancient custom. The ashes are scattered over the waters of the Ganges in the foreground.

* These are generally of the Jewell type.

the smaller communities of the country will in time be appreciated by Indian sanitarians.

In the matter of the examination of water, in those cities where laboratories for this purpose are maintained, certain standard methods have been adopted similar to those of the American Public Health Association. The *B. coli* determination is made and considered as the "bacterial indicator." From time to time standards of purity for lake, river and well waters have been proposed, but as the question of the protection and treatment of water supplies, considered as a matter of public interest, is confined to a very few of the more progressive and important cities, such standards affect but a small part of the total population. The water that the ordinary Indian drinks is as pure, or rather impure, as he finds it; and this in turn depends simply upon the extent to which he and his friends and relatives have contaminated the family well or village tank. The few spots in India where the European traveler, for instance, may drink plain water with impunity stand out like small islands in an ocean of soda water, bottled water of various sorts, and tea—the water for the tea being presumably boiled. Outside of the largest cities, each individual must look out for himself in the matter of obtaining safe water to drink.

A primitive bakery in the country. The baker has his loaves in his hands. The two men to the left are typical Indian sanitary inspectors. If properly qualified they may receive from $25 to $50 a month.

Sewage Disposal. In the strict sense of the term, sewage disposal is a problem encountered in very few Indian communities, for the reason that only the most populous cities are sewered, and even these do not possess anything like a complete system. In this respect the situation is similar to that of the water supply, the service being only a partial one. Among the cities that are partly sewered may be cited Bombay, Calcutta, Madras and Rangoon. Such cities as Cawnpore, Lucknow, Agra, Delhi and Poona are progressing in the development of the water-carriage system. In most cases one of the limiting factors in the extension of municipal sewerage is an insufficient water supply.

It is claimed that Bombay has the most extensive sewer system of any in the East, yet in the native quarters there are thousands of houses with the usual style of basket privy. In fact the chief concern of the health authorities in the larger cities as well as in the smaller towns when dealing with this problem is to maintain in a sanitary condition these private privies and the public latrines. Only a small portion of the excrementitious wastes of the city appears in the form of sewage; the great problem is the disposal of the night-soil collected in baskets at individual premises.

In congested parts of the city there is usually found what is known as a sweepers' passage extending along the back walls of the houses on either side. For each house there is an iron basket set into the wall and directly under the privy seat in the house. The sweeper removes and empties these baskets at least twice

daily, carrying them on his head to the nearest sump connected with the sewers.

Owing to the vegetable diet of the people, the amount of excreta produced per capita is considerably in excess of the quantity to be expected in the temperate zone. As the Hindu uses water for ablution purposes, this must be added to the dejecta in estimating the amount to be disposed of. In Bombay, for conservancy purposes, two pounds per capita per day is assumed. As a matter of fact the actual amount to be removed by the sweeper is somewhat less, as a considerable amount of the liquids escapes into the open drains in the sweepers' alley.

The insanitary conditions attending this method of removal need no comment. Only by constant supervision and inspection is such a system made tolerable in a tropical country. During periods of outbreaks of intestinal diseases, the cleaning up and disinfection of the numerous sweepers' passages is made the duty of a special staff of inspectors and sweepers.

The sweeper or halalkhor, who removes the night soil, has come to be regarded as an institution. The sweeper class comprises both men and women who do no other work than that of conservancy. It would seem at times that no human being could withstand the conditions attendant upon the work they do. It is a notable fact, however, that sweepers in general are singularly immune to infection from the material they handle.

Refuse Collection and Disposal. In the European business districts and cantonments, as well as in the better residential sections, sanitary waste bins are provided and emptied by the refuse collector. Ordinarily, collection is made by bullock cart, though motor trucks are coming into use in the largest cities.

In mofussil (or country) towns in those sections where the houses have no yards or compounds, the refuse from the bazaars and private dwellings is simply thrown into the street or is swept into any odd corner. When this occurs, the village crows are the unofficial, though very efficient, scavengers. Aside from

The Hindu laundryman or dhobie, washes his clothes in the wayside streams. In the larger places the municipal authorities make inspections of the laundry streams.

the unsightliness of the conditions resulting from this practice, a grave danger arises from the breeding of rats in the accumulations of rubbish. The disposal of liquid wastes on the sidewalks and streets also favors the breeding of both flies and mosquitoes, and necessitates special supervision and restrictive measures, on the part of the sanitary department.

The amount of mixed refuse collected is on the average about 700 pounds per capita per year, and the weight per cubic foot is about 30 pounds. Sanitary opinion in India advocates the incineration of refuse of all sorts. In Madras and Calcutta destructors are operated. It is believed that there is an important field for the installation of small-size incinerators in country towns, particularly in regions of slight rainfall.

In concluding the foregoing summary of sanitary activities in urban communities of India, the following figures, quoted from a table presented by Turner and

Goldsmith in their work on "Sanitation in India," are of interest in showing the extent to which the most progressive of Indian municipalities are giving their financial support to public health work.

EXPENDITURE ON SANITATION IN THE THREE LARGEST CITIES OF INDIA

City	Population 1917	Area Acres	Assessed Valuation	Annual Expenditure on Sanitation
Bombay..	979,445	14,575	£3,300,000	£113,000
Calcutta .	890,000	20,547	2,500,000	78,000
Madras ..	500,000	17,280	94,933	23,000

Control of Infectious Diseases.

India has for ages past been the scene of recurring epidemics of infectious diseases. Before the introduction of modern epidemiological methods and measures directed against the specific cause of each particular infection, the stage of Indian life was always set for the tragedy of sickness and death. Even now it is only with the utmost care and watchfulness that medical men and sanitarians are able to prevent the spread of sporadic outbreaks that occur in different parts of the country. While the ordinary public health work, such as we know and in which we are engaged in this country, is being carried on as routine work in India, the control of diseases such as plague, cholera and smallpox in epidemic form furnishes one of the most important and at the same time the most spectacular features of the public health campaign waged in that country.

Mention has been made of the assistance rendered by the Indian Medical Service and various sanitary organizations in carrying out research work, and in planning effective methods both of preventing and combating the spread of infectious diseases in general, and of plague, cholera and smallpox in particular. A few of the more important aspects of the control of plague and cholera will be reviewed briefly at this point. Measures directed against smallpox need no further comment, seeing that they are similar to those adopted in America, modified indeed to deal more effectively with the ignorance and religious susceptibilities of the people. Now that vaccination against smallpox can be made, and is made, compulsory, the way has been paved for rapid progress in the control of this disease in India.

Plague. The number of deaths from plague in India during the fourteen years from 1901 to 1915 was approximately 8,000,000. The occurrence of plague is intimately associated with the crude construction and insanitary surroundings of the native quarters, especially as related to the storage of foodstuffs and disposal of refuse. Ideal conditions are at all times present for the breeding of plague-infested rats. The rat-proofing of Indian dwellings is one of enormous difficulty, and even with the greatest zeal cannot be accomplished, for economic reasons, except very gradually. The problem of rat eradication is being attacked from another angle, however, through ordinances requiring the sanitary disposition of waste material, and the protection of foodstuffs in the bazaars from access by rats. This has been found to be a most important measure, since infection, once started in the market place, is carried to all parts of the city. The New Market in Calcutta is a notable example of an eastern bazaar conducted along lines of sanitation and cleanliness found in the best municipal markets in our own country.

In the case of an outbreak of plague, evacuation of the infected premises is considered a standard procedure whenever practicable. The people in general readily agree to removal to temporary camps for the purpose of escaping the infection. Terminal disinfection is advocated, the insecticide used being crude

fuel oil, prepared under the trade name of "Pesterine."

According to the Plague Manual, based upon the Epidemic Diseases Act of 1897, the destruction of rats is one of the most important measures that can be taken to prevent the spread of plague. Considerable opposition is often encountered in destroying rats in the houses of Hindus and of certain other sects.

During recent years, great advances have been made in the popularizing of inoculation against plague. The campaign of education takes many unique and interesting forms, such as the public inoculation of the medical officer or of the European magistrate of the community; while in many instances a social gathering is organized by leaders of the various Indian communities for the purpose of persuading friends and relatives to be inoculated. In the Manual referred to, an interesting and very successful experiment conducted along these lines at Bangalore is aptly described in the following words: "In order to render the function as attractive as possible, the organizers usually provided some sort of entertainment for the amusement of those assembled. This generally took the form of a band, or of a tomtom in the case of more modest gatherings. In addition, refreshments were provided for those inoculated, each person being supplied after the operation with bread, plantains, rice, coffee, or something of the kind; and on rare occasions small sums of money or articles of clothing were distributed."

The serum used is that of Haffkine and is prepared by the Indian government laboratories. The quantity inoculated is 4 cc. in the case of adults, with less amounts for children. The active immunity conferred has been well established by experience in actual epidemics. The following table, taken from the Plague Manual and showing the benefits of inoculation at Bangalore during 1907–1908, is typical of the results obtained elsewhere.

COMPARISON OF CASE RATE AND MORTALITY FROM PLAGUE AMONG INOCULATED AND UNINOCULATED PERSONS AT BANGALORE, INDIA.

Treatment	Persons	Attacks	Per cent Column 3 to Col. 2	Deaths	Per cent Column 5 to Col. 2
1	2	3	4	5	6
Inoculated....	33,055	20	0 06	9	0 02
Uninoculated..	56,945	1,460	2 6	1,221	2 1

Cholera. The mortality due to cholera during the period 1901–1915 is estimated at 5,000,000 for the whole of India. In point of numbers, cholera appears to have claimed less victims than plague, but to Europeans at least, a cholera epidemic is fraught with graver dangers than arise from plague, because of the greater exposure to infection found in the case of the former disease. The avenues of infection are legion; no more, perhaps, than the possible number in any other country, but in India all of them are always wide open to the advance of the disease, unless prompt and energetic measures are taken to close them. No uncooked food should

The landing place of the village on the Irrawaddy. Everything is primitive. The groves in the background are bamboo, the shelter huts on the beach are thatched and as for sanitation, that has not ever even been dreamed of.

be eaten in an infected area and personal attention to the boiling of milk and water is essential. In this connection, the Indian's notions regarding "boiled" water are notoriously at variance with the accepted definition. The writer has had occasion to note three Indian ways in which "boiled" water is frequently served to the unsuspecting European resident or to the European medical officer working in an infected area, viz.: (1) the water is heated only until vapor is seen by the native to rise from the receptacle; (2) the water is actually boiled, but is subsequently strained through a dirty cloth (usually the one in which the cook carries the vegetables from the bazaar) to remove the particles of dust collected on the surface; (3) the boiled water is diluted with raw water in order to cool it down more quickly. One has but to be in the midst of an anti-cholera campaign to realize the difficulties surrounding the preparation of so simple a requisite as boiled water.

In addition to the danger from infection via the water supply, the possibility of transmission of cholera due to fly contamination and the consumption of uncooked fruits and vegetables must always be considered and guarded against in an anti-cholera campaign. Furthermore, it is sometimes necessary to prohibit the sale of milk on account of the possibility of infection via this route. In order to make this quite apparent, mention need be made only of the practice of Indian dudhwallahs of scouring their milk containers with mud from the street, or of adding water to the milk from a contaminated well, or of scattering a handful of stable bedding-straw over the mouth of the milk pail to prevent splashing of the milk as he carries it along the street.

Of more importance to the native than to the European may be mentioned the rôle played by direct contact with persons suffering from cholera, and the presence in every endemic area of cholera carriers. In such areas a sort of natural resistance against attack is a factor in keeping the case rate from being higher than it actually is; but once the native is striken with cholera, he succumbs much more rapidly than the European.

The key to the epidemiology of cholera in India is to be found in the habits and customs of the people. Fairs, festivals and huge concourses of pilgrims are an integral part of the social and religious life of all classes. The people who attend these fairs are absolutely indifferent to the need for strict sanitary precautions. In the holy cities, especially those on the sacred rivers, where bathing and washing are the most prominent features of the ceremonies observed by the pilgrims, water-borne cholera is the typical form in which it makes its appearance.

Drastic measures are now taken against outbreaks occurring as a result of the holding of such festivals and fairs. Temporary huts for the pilgrims are put up, properly laid out in blocks, with a view to good drainage and adequate sanitary arrangements. Drinking from promiscuous sources is prevented as much as possible and such suitable supplies as may be available are protected. In villages, disinfection of wells by potassium permanganate is standard practice. Enough permanganate crystals are dissolved in the water to produce a pink color lasting twenty-four hours. The native is now quite used to this procedure and accepts it as a matter of course.

In the treatment of cholera, the methods introduced by Leonard Rogers of Calcutta have won wide recognition. Through the use of the transfusions of saline solution, together with the internal use of potassium permanganate water,

recommended by him, a case recovery of 80 per cent is possible, provided the patient is attended by the medical officer before the stage of collapse supervenes. The drinking of potassium permanganate dissolved in water is also considered to be of value as a protection against initial infection, and accordingly in various parts of India permanganate pills are distributed to local relief organizations as are the quinine tablets supplied in the prophylaxis of malaria.

PUBLIC HEALTH DEPARTMENTS AND PRIVATE HEALTH AGENCIES.

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New York Bureau of Municipal Research.

This author takes issue with Dr. Hill on the functions of health officers. He believes that they should undertake all kinds of public health work, that responsibility divided with private agencies will hurt the health officer's work, that public health education is necessary and that this must be conducted by the health officer if he is to fill adequately his sphere. Private agencies should bend their efforts to support the health officer. : : : : : : : : :

IN his very interesting paper, "What Is the Matter with Public Health Today," published in the November number of the JOURNAL, Dr. Hibbert W. Hill, executive secretary of the Minnesota Public Health Association, puts the responsibility for lack of efficiency in the control of infectious diseases squarely on the shoulders of public health officers. No student of public health administration will disagree with Dr. Hill when he says that the protection of the public from infectious disease is the *sine qua non* of health work, and that health officers all over the country have failed to exercise their police powers intelligently and effectively to this end. But Dr. Hill's suggestion that public health officers should limit themselves to compulsory police work against infectious diseases and turn over to the private volunteer agencies those health activities which are essentially educational and depend for their effectiveness upon the voluntary action of the public, is not, it is believed, based on the same sound premise. On the contrary, there is good reason for thinking that the plan which he proposes for dividing responsibility between official and volunteer agencies will contribute to rather than eliminate present weaknesses in health administration. While recognizing his lack of authority to speak for the health departments of the country, it is the purpose of the writer to present certain arguments against Dr. Hill's proposal. The health officers of the states and cities will no doubt think of many more.

Public health work is, as its name indicates, a matter of *public* concern and *public* necessity. The public ought, therefore, to be represented in all health activities which it supports, by an official agency, which is the department of health, and by an official agent, who is the

health officer. The health officer is the one who ought to be held responsible for the health of a community without any limitation as to the meaning of the phrase "the health of the community." He ought not be permitted to divide his responsibility with anyone. No matter how well organized and well-financed private agencies may be, and no matter to what extent the health officer may find it desirable to use them, there should be one public health administration with the health officer at its head, and one public health program under his control. If the health officer is wise he will encourage the coöperation of private agencies but he should not divide his responsibility for the public health with them.

Studies of state and municipal health administration in the United States show clearly that the failure of many health officers to measure up to their jobs is due in large measure to divided responsibility for control. Private health agencies came into being largely because groups of citizens saw needs which were not being met by the official agencies. Instead of directing their efforts to strengthening official agencies where weaknesses were seen, these groups of citizens quite naturally decided that the thing to do was to create new organizations to do what the already established official organizations ought to have done but did not do. This is the American way of trying to develop efficiency of government and it is one of the reasons why "efficient democracy" is as yet only a vision. Bound by no limitations except as to funds, and responsible to no one but their supporters, the private health agencies have grown rapidly until, at the present time, the health officer is beginning to wonder whether he is the ringmaster or only the clown of the circus.

The health officer himself is largely responsible for this not unusual situation, for, in many instances, he has aided and abetted the private agencies in taking from him responsibilities which he alone should carry. He has done this, either because he was ill-fitted for the work himself, or because he despaired of doing what he thought necessary without adequate funds. In either case the result has been the same; finding private health agencies willing to carry the load for him, he has often contented himself with doing a little amateur police work, as Dr. Hill says, and as time has gone on, he has found little inspiration in such police work and has depended more and more on the private agencies. Finally he becomes, instead of a figure, a mere figure head in the public health program.

The situation just described is not an imaginary one. It is found in cities and states all over the country, and wherever there is found this division of responsibility between the official health authority and the private volunteer health agency, there is usually found irresponsibility on the part of both. No health program can be really effective until it has a real head who can plan every detail of the program, and say how it shall be carried out. In other words, there must be one control, no matter what agencies may be coöperating.

But aside from the fact that Dr. Hill recommends division of responsibility for public health work, which, it is believed, will inevitably result in inefficiency of public health administration, he attempts to differentiate compulsory and voluntary activities as two relatively independent groups, a differentiation not practically possible in public health administration. The compulsory activities of a health department are absolutely dependent upon the preparation of the public for compulsion by thorough educational measures. This is well illustrated in the case of protection against infectious disease,

which Dr. Hill rightly regards as the essential function of a public health department. If health officers all over the country had limited themselves to police regulation of infectious diseases and left the educational side of infectious disease control to private agencies, it is quite probable that we should have even seen then the 1 per cent efficiency in infectious disease work with which Dr. Hill credits health departments. As long as the public views the health officer as a mere policeman, just so long will there be inefficiency of reporting infectious diseases, upon which all subsequent measures of control depend. There will be even more frequent concealment of cases, and a tendency on the part of the people to avoid any contact whatever with the police health officer. Police regulation is absolutely essential; we ought to have more intelligent police regulation than we now have, but unless police regulation goes hand in hand with education, it will never produce permanent results. This is as true in the prevention of crime as in the prevention of disease, and the modern, progressive police department recognizes this fact in carrying on its program of crime prevention.

The public recognizes the health officer as the one to whom it should look for advice and wise counsel in health matters, and it rightly expects to get its education in health matters from some one who officially represents it. Whether the health officer is efficient or not, he is the one who should educate his public. Most people stand in the same relation to the health officer as the school boy to his teacher. Away back in the school boy's head there is a sort of vague notion that education is all right for some one else, but he really wouldn't take a good dose of it himself if he didn't have respect for the authority of his teacher. Compulsion in his case goes hand in hand with education. So it is with the public; if the teaching is brought to the public by one whom the public holds in respect as having police power, and who is at the same time competent to teach, the teaching will be much more readily accepted, much more highly valued, and much more generally made use of. To leave this responsibility for teaching, to private agencies having no official status in the eyes of the public, would, it is believed, be a serious mistake. Most health officers will probably subscribe to the statement of Dr. C. J. Hastings, the able medical officer of health of Toronto: "91/100 of the permanent efficient results of the department of public health is in education."

Efficient public health administration depends upon putting well-trained, whole-time health officers into local health departments and keeping them there. How is this to be done? Certainly it can never be done through salaries alone, for the kind of men and women needed in public health departments can, in the majority of instances, earn higher salaries in private employment. It must be done, then, by making the opportunity for public service, and for self expression in that service, so great that competent men and women will be drawn to public service even though salaries are inadequate. It would be hard to estimate what the salary of an efficient health officer ought to be; he cannot be paid enough if he is really efficient, but if he is given opportunity to be an educator as well as a police officer, he will probably feel that he has compensation which is not measured by salary alone. To take away from the public health officer such opportunity for service as is found in educational health work would be to rob him of part of his compensation, and make health administration so unattractive, except perhaps for the policeman-epi-

demiologist, that few would care to enter it. Public health service would indeed be a poor outlet, under such circumstances, for the men and women who have spent, and are spending their time and money to fit themselves as health officers. Private health agencies would perhaps offer them the opportunities which they seek, but certainly the standards of official health service would be lowered.

No small part of the inefficiency of public administration in this country is the result of the failure of health officers to present health needs convincingly and intelligently to the public, and, as a natural sequence, to the failure of appropriating bodies to recognize the vital necessity for meeting health needs with adequate appropriations. If then, as Dr. Hill suggests, the health officer is shorn of all responsibility for health work which has a real appeal to those who hold the purse strings, the financing of official public health work will be even more difficult than it has been in the past. No matter how carefully thought out the health officer's program may be, no matter how imposing his array of facts and figures, he will find it well-nigh impossible to stir the sympathies of the appropriating body or the public, if his appeal for funds is based only upon the need for better police control of infectious diseases. The American people do not want to be policed, and except in the face of an epidemic, they are reluctant to spend money for police health work. This attitude cannot be condoned, of course, but, nevertheless, it must be reckoned with. On the other hand, it is comparatively easy for health officers to get money for educational work for the prevention of infant mortality, the protection of motherhood, the supervision of the health of school children, and other activities which have a direct appeal to human sympathies, and which Dr. Hill classifies as voluntary. If the health officer turns over this weapon of education to the private agencies and relies only upon his policeman's baton, the private agencies will get the money for health work and he will be left out in the cold. The public wants to have its emotions stirred, and stimulation of its pocket-book nerve will get little response unless such stimulation arouses a real emotional thrill. But, if the emotions of the public can be stirred, it is usually quite ready to give financial support to the measures proposed. The experience of the Red Cross, Knights of Columbus, Y. M. C. A., and other organizations during the war and since, proves what can be accomplished in raising money by appeal to human sympathy. It is believed, therefore, that any plan of health administration which would take away from the health officer the opportunity to make his plea for increased appropriation on the basis of the need for educational work, would seriously hamper him in securing sufficient funds even for the necessary compulsory police work of his department.

The questions which Dr. Hill raises are by no means academic. In view of the widespread health propaganda of private health agencies, and their well organized activities along many health lines, it is highly desirable that there be a definition of the principles upon which their relation to official health departments shall be based. It is the opinion of the writer that the private health agencies have mistaken their function and misunderstood their relation to the government. The ideal state is one in which the machinery of government shall be so efficient, and so well supported by public funds, that there will be no need for private agencies. This is an ideal which probably will never be reached, but it is an ideal worth working for. If,

instead of trying to strengthen their own organizations and their own grips upon the public health program, private agencies would spend their time and money in strengthening official health agencies, better and more permanent health benefits would result. If, in those communities where the health departments are without competent whole-time health officers, inadequately supported, and improperly organized, the private agencies would carry on a campaign of education which would result in a public demand for these essentials, there would be more efficient health departments and more whole-time, well-trained health officers than we now have. If the private health agencies would study the needs of the health departments in their communities, and at budget time back up the health officers in their demand for larger appropriations of public money, they would do more for raising the efficiency of public health work than by all manner of "drives" to raise funds for their own spending. If, where there is a competent, well-trained health officer, the private agencies would place themselves at his disposal and permit him to direct their activities according to his plan, they would save money and accomplish more. The experience of the private health agencies of Dayton under unified health department control illustrates very well how this can be done for the health benefit of a community.

Briefly summarized the arguments made against the proposal for divided responsibility for health service as set forth in Dr. Hill's paper are:

1. That divided responsibility for public health will result in lowering standards of official health administration;

2. That compulsory health work is dependent for its efficiency on the educational preparation of the public for compulsion, and that health education to be most effective must be brought to the public by the one who has official authority, namely, the health officer;

3. That, if official health departments are concerned only with police regulation of infectious diseases, there will be little in official health service to attract well-trained, whole-time executives;

4. That the removal of educational health work from the control of official health departments will handicap such departments in securing adequate appropriations, even for the very essential police work necessary.

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Mental Hygiene in the Schools.—That health is something more than mere physical health is becoming more and more apparent. The importance of good mental health in addition to good physical health has become quite obvious. Heretofore children in the schools were taught only the principles of good physical health. This must be supplemented today by instruction in mental hygiene. Not only should every child receive a thorough physical examination once a year, but a thorough mental examination should also be included. Defects that are discovered should be given prompt treatment and remedied. Children should be taught the general anatomy and physiology of the nervous sytem and its relation to other parts of the body and the mind. The general principles of psychology should also be included. Teachers should be able to recognize early mental defects, so that the child may receive early treatment. The mind of the child should receive proper food,—the kind that will stimulate it, and bring out its greatest possibilities. It must not be overtaxed, however. The mind should receive complete rest, through sound sleep, relaxation and recreation. The environment should be cheerful and bright, so as to produce a favorable effect on the mind.—Horatio M. Pollock, Ph. D., *Boston Med. and Surg. Jour.*, Aug. 14, 1919.

(*M. P. H.*)

ON A STANDARD SYSTEM OF BACTERIOLOGICAL DILUTIONS.

WILLIAM FIRTH WELLS,
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Read before Laboratory Section, American Public Health Association, at New Orleans, La., October 30, 1919.

Proper bacteriological dilutions are necessary for correct interpretations. The system here proposed adopts the dilution scale for its standards. On a consistent system of laboratory technique, including logical methods of computing results and a natural scale of interpretation, depends the real practicability of bacteriological standards.

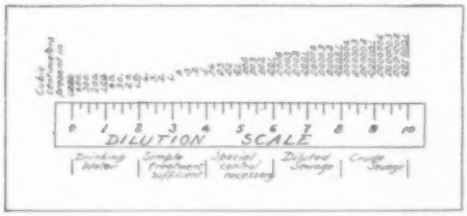
SANITARIANS generally realize the limitation imposed upon bacteriological standards through want of precision in quantitative methods. Those who have attempted to remedy results by applying the theory of probability to quantitative bacteriology have fallen into two errors. Being rather more mathematicians than bacteriologists, they have developed unnecessarily complicated expressions which practical laboratory analysts cannot understand or apply, and though arriving at a solution satisfactory to themselves, they have overlooked the most important difficulty of the bacteriologist. Their efforts aim at the determination of the number of bacteria in each particular sample, while the principal problem is to predict the condition of a source knowing the condition of the several samples. Moreover, the greatest need at present is a standard system of dilutions built on the system of interpretation to follow.

Suppose the theoretical number of bacteria per cubic centimeter were given, how much further toward interpretation is the bacteriologist? He uses such a hypothetical figure, with all its limitations, as an index by which he can think of his results in terms of experience. He associates it with actual conditions under which he expects the given bacteria will occur in given dilution quantities of the sample. Why not cancel in one bold stroke the fearful process of calculation with the doubtful mental return to judgment?

This is accomplished by the dilution scale proposed in a previous paper.* It is graphically represented in Figure I.

FIGURE I.

Dilution Scale Diagrammatically Measuring Pollution represented by presence of *B. coli* in quantities of water shown.



The practical technical principle of the dilution is taken as the basic unit of measure, and consequently it is necessary to think directly in terms of the actual steps of procedure. It is drawn to resemble the ordinary measuring rule so as to emphasize the similarity to pollution measurement. The various points on the scale represent the grades of pollution which the presence of *B. coli* in the given quantities signify. One can think of it as a rule to measure the pollution of an unknown sample; of which the quantities

* AMERICAN JOURNAL PUBLIC HEALTH, September, 1919, pages 664–667.

are tested to indicate a degree somewhere between the point representing the highest dilution showing B. coli and the lowest in which it is absent. According to the number of dilutions tested, these points can be brought as close together as desired. The scale above figured has forty divisions obtained by dividing into quarters the ten whole dilutions ranging from a condition of the purest drinking water to that of crude sewage. Though the divisions are finer than bacteriologists ordinarily apply, the given scale covers all conditions possible in practice.

By adhering to the dilutions shown on the scale and expressing results in terms of dilutions the resulting computations reduce to simple arithmetic. The mathematical reason for this is perfectly sound,* for one has in making the given dilutions solved technically the complicated relation involved. Perhaps the fact that the dilution scale has evolved in the familiar laboratory technique is more than mere coincidence, but in any case it admits of a great simplification in the interpretation of results. It requires but the adoption of a standard system of dilutions and in return offers to solve the main trouble in a very simple and practical way. While affording a much needed criterion for the distribution of dilutions, it also cuts away a maze of confusion, exposing an otherwise clear technique which an unnatural system has obscured.

First to appear on examination is the fallacy of the false economy of dilutions. It is obviously not necessary to apply every dilution on the scale in testing each sample. In reality a few dilutions are chosen, either consciously or unconsciously representing the small range or span of the scale in which the bacteriologist expects to find the deciding dilutions. But where so few are used, and the range is so great that a qualitative uncertainty may change the location of a result by a whole dilution on the scale, then that dilution is unnecessarily important, and the use of a few more tubes would greatly increase the precision. By the use of a fermentation tube battery described in another paper* it is possible rapidly to inoculate a large number of tubes and eliminate this source of error. It is, therefore, considered an integral part of the technique.

Simplicity demands more or less standard batteries, although they can be made to contain any number of tubes. This limitation on technique thus tends toward standardization and is in no way inconsistent with precision. On the other hand, since the accuracy demanded in the result is in a general way proportional to the variation expected in choosing the dilutions, such a standard number of tubes gives a standard of precision for each range or dilution span of the scale which the given dilutions must cover.

A standard number of dilutions covering a given range or dilution span on a standard dilution scale determines the quantities used for inoculation. The dilutions are evenly distributed throughout the dilution span in accordance with the dilution scale. The length of the dilution span is, therefore, inversely proportional to a precision standard. It is necessary to estimate the dilution span from the preliminary evidence at hand. It should be always chosen to give a positive and a negative tube, and is, therefore, the span between the highest dilution judged surely to be positive and the lowest surely negative. With well known waters it may be closely determined and the precision of the result will be greater, while with little known samples it is correspondingly broader and the precision is

* Science, N. S. Vol. XLIX, No. 1269, pages 400–402, April 25, 1919.

* American Journal Public Health, December, 1919, pages 904–905.

relatively lower. In this way the standard system of dilutions adapts itself to the requirements of the test and to the subsequent computations of which it becomes a part.

There only remains in applying these general considerations to establish definite values and to give concrete examples of practice. Considering the labor involved in collecting the sample and other steps in the test, less than five tubes are under ordinary circumstances insufficient, while more than ten are usually superfluous. For practical reasons, therefore, the battery of ten tubes was selected. It contains two samples of five tubes each, though where greater precision is desired all ten may be used for the same sample by making duplicate series, the average of which gives doubled accuracy.

For purposes of illustration typical examples of the application of the system to common dilution spans are given. Suppose the bacteriologist knows that the 10 cc. tube of a sample will give a positive test and the 1 cc. tube will be negative. Five dilutions at intervals of a quarter dilution will cover the span as follows:

Example of one dilution span.

Dilution	2.0	2.25	2.5	2.75	3.0
Cubic centimeters	10.	6.	3.	2.	1.

The two dilution span will ordinarily be found most convenient with unknown drinking waters. The intervals are, therefore, half dilutions as in the following example:

Example of two dilution span.

Dilution	2.0	2.5	3.0	3.5	4.0
Cubic centimeters	10.	3.	1.	.3	.1

By using intervals of whole dilutions a four dilution span is covered as follows:

Example of four dilution span.

Dilution	2.0	3.0	4.0	5.0	6.0
Cubic centimeters	10.	1.	.1	.01	.001

Very seldom will it be found necessary to make dilutions cover a wider range. With ten tubes greater precision could be obtained by duplicating each series and averaging the dilution positives of both or the dilution span could be divided so as to make even intervals.

Intermediate between the two and four comes the three dilution span which divided at regular intervals gives awkward dilutions. Since, however, the middle dilution is the more important because it is more likely to contain the dilution positive, this dilution is divided as in the two dilution span while the first and third are whole dilutions.

Example of three dilution span.

Dilution	2.0	3.0	3.5	4.0	5.0
Cubic centimeters	10.	1.	.3	.1	.01

The same effect, using ten tubes, can be obtained by making each five tube series as in the two dilution span but allowing the two series to overlap one dilution, which is the middle dilution.

Example of three dilution span.

Dilution	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Cubic centimeters	10.	3.	1.	.3	.1		
Cubic centimeters			1.	.3	.1	.03	.01

By thus concentrating on the middle dilution, which is judged most probable to contain the dilution positive, there is a favorable chance of reaching the precision of a two dilution span; otherwise the result will be that of a four dilution span.

There remains a very important combination which has been independently developed. The United States Treasury standard for drinking waters is defined by inoculating ten tubes each with 10 cc. of water; of which not more than two may be positive. Where quantities of sample larger than 10 cc. must be tested (which now includes the majority of good drinking waters) this test is the only practical one since more than 10 cc. cannot conveniently be put in the test tubes described in the battery. The technique does not fit exactly to the theory of the dilution scale which is built on a geometrical series. It is, however, an arithmetical

approximation and if the dilution span is not too great, sufficiently accurate if each positive tube is considered to represent a tenth dilution as follows:

Dilution equivalent of U. S. Treasury Standard method.

Dilution..	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
Cubic Centimeters	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.

While such an expedient is justified under this practical case it is not recommended where it is just as convenient to make inoculations consistent with the theory of the scale.

To show a concrete example of the actual application of the system in practical routine Figure II is described.

FIGURE II.

WATER EXAMINATION FOR B. COLI

System of fermentation tube inoculation for three types of conditions showing scale for dilutions positive, corresponding number of B. coli per c.c. and action demanded by quality represented.

TYPE I	cubic centimeters 10	1	0.1	0.01	0.001	Dilution Positive	B. coli per 1000 c.c.	Action demanded
Drinking Water Developed supplies or passed without treatment. Routine control examinations.	−	−	−	−	−	<1.0	<1	Excellent
	+	−	−	−	−	1.2	2	Passed by A.E.F. Standards
	+	+	−	−	−	1.4	3	Repeat and improve treatment until passed
	+	+	+	−	−	1.6	4	
	+	+	+	+	−	1.8	6	
	+	+	+	+	+	>2.0	>10	Repeat under Type II.
TYPE II	**cubic centimeters 10**	**1**	**0.1**	**0.01**	**0.001**	**Dilution Positive**	**B. coli per 1000 c.c.**	**Action demanded**
Water Sources Proposed for Lister bag treatment. Routine preliminary examinations	−	−	−	−	−	<2.0	<10	Repeat under Type I.
	+	−	−	−	−	2.0	10	Suitable for Lister Bag Treatment
	+	+	−	−	−	2.5	30	
	+	+	+	−	−	3.0	100	
	+	+	+	+	−	3.5	300	
	+	+	+	+	+	>4.0	>1000	Repeat under Type III.
TYPE III	**cubic centimeters 1**	**0.1**	**0.01**	**0.001**	**0.0001**	**Dilution Positive**	**B. coli per 1000 c.c.**	**Action demanded**
Special Sources requiring special authority for use and special treatment and control	−	−	−	−	−	<3.0	<100	Repeat under Type II.
	+	−	−	−	−	3.0	100	
	+	+	−	−	−	4.0	1000	Only to be used after treatment recommended and controlled by special authority.
	+	+	+	−	−	4.5	3000	
	+	+	+	+	−	5.0	10,000	
	+	+	+	+	+	>6.0	>30,000	

Note
< Signifies less than
> " " greater than

It was used at certain laboratories in France under the writer's direction as a working guide to conform to the regulations used by the Water Supply Service. Under these rules waters appeared to the officer to fall under three general classes: First, *Drinking Water* was defined as passing the United States Treasury standard on repeated tests continually made as a control. Second, *Prospective Drinking Water* tested to determine suitability, comprised practically all undeveloped sources, and preliminary examination only was needed to show whether treatment was necessary or simple treatment sufficient. If this test indicated a Class I source repeated examination automatically became necessary, while if it was worse than Class II it fell into the Third Class of *Raw Waters*, to be condemned if possible for drinking purposes. If the only available source, special treatment and control were required, the risk of unskilled supervision being too great and conditions were so exceptional that special precautions were advisable.

The laboratory tests were, therefore, standardized under three types of procedure. Preliminary samples were analized under Type II and ordinarily simple treatment in Lister bags found sufficient. These were chiefly wells and springs used in billeting areas. In more or less permanent camps there were many supplies developed by the engineers, and routine examinations of these were made under Type I. The raw water samples for these supplies sometimes were Type III, which ordinarily constitutes an emergency class. Each laboratory assistant, therefore, knew definitely what dilutions to make and consequently the results were uniform and perfectly easy to interpret on the dilution scale.

Conclusion.

If dilutions are made in conformity with a standard dilution scale and results computed in terms of dilutions, and interpreted directly according to their location on the scale, many of the present difficulties of bacteriological standards will disappear.

INFLUENZA OBSERVATIONS IN FRAMINGHAM, MASSACHUSETTS.

D. B. ARMSTRONG, M. D.,
Executive Officer, Framingham Community Health and Tuberculosis Demonstration.

Read before General Sessions, American Public Health Association, at New Orleans, La., October 28, 1919.

Why did the husky succumb in the influenza-pneumonia epidemic, was arrested tuberculosis a protection, and what had the race factor to do with immunity? These are queries that Dr. Armstrong asks, and he has basis for his questionings in the observations of the Framingham survey. He gives health officers much food for thought.

THE influenza epidemic of 1918–1919 manifested itself in Framingham in two distinct waves, culminating as measured by mortality in October and December, 1918. There were probably between 1,500 and 2,000 cases of the disease in a population of approximately 17,000. Of these, about 1,100 were reported to the local health authorities.

The major findings in an analysis of the incidence, the mortality, and the subsequent medical conditions among those afflicted may be summarized under the following headings:

I. MORTALITY STATISTICS.

Between September, 1918, and June, 1919, inclusive, there were 118 deaths in which the cause was certified as influenza, with or without secondary causes. In addition, there were 24 deaths during this period from primary causes such as pneumonia, myocarditis, nephritis, etc., in which influenza was certified as a secondary cause. This analysis of mortality is based on the 118 deaths with influenza as the primary cause of the fatality.

For 1918 alone the mortality rate from influenza was 464 per 100,000, or 4.6 per 1,000, on a basis of residents dying in or out of town.

Seventy-three deaths, or 62 per cent, were among native born; 21 deaths, or 18 per cent, were among Italian born; 18 deaths, or 15 per cent of the residents, were among Italians. The Italian population is estimated to constitute 7 per cent of the total of Framingham population.

Where influenza was certified as the primary cause, one or another type of pneumonia was given as a secondary cause in 100 cases, or 85 per cent.

The mortality by months was as follows: September, 16; October, 57; November, 3; December, 32; January, 4; March, 0; April, 1; May, 0; June, 1.

The curve for this monthly mortality shows two strikingly high points in October and December.

II. INFLUENZA FOLLOW-UP.

During a period averaging from three to five months following recovery from the influenza attack, it was possible to examine 700 survivors. All of these examinations were done in the homes of the patients, and were carried out by physicians specially trained in clinical tuberculosis. About 2 per cent of the examinations were done in consultations with the local physicians.

(a) *Sex.*—Three hundred of these examinations were of males and 400 of females.

(b) *Age.*—Of the total examined, 41 per cent fell in the so-called industrial age group, 15 to 44 years inclusive.

(c) *Severity of Disease.*—The 700 cases examined were classified on this basis as follows: mild, 418; moderately severe, 217; severe, 65.

(d) *Extent of Illness.*—All of the cases accepted for analysis in this study were severe enough to have been placed in bed for treatment. The length of time in bed for the 700 cases is indicated as follows:

Less than one week	210
1–2 weeks	282
2–3 weeks	123
3–4 weeks	48
4–5 weeks	19
5–6 weeks	8
6–7 weeks	3
7–8 weeks	3
11 weeks	3
Several months	1
Total	700

Five per cent of the cases were sent to hospitals for treatment, and 9 per cent of them were said to have had pneumonia as a complication.

(e) *Family Incidence.*—The cases were classified according to the incidence of more than one case in a family as follows:

No other cases in the family, 10 per cent; one or more additional cases in the family, 87 per cent; information lacking, 3 per cent.

(f) *Medical Findings.*—It was possible in Framingham to contrast the medical findings in this group of individuals with similar findings in the pre-influenza epidemic medical examination campaigns. In the preceding examination work, an effort was made to examine all types of individuals, and the examinees were representative of the community at large as regards geographic, economic, racial, and social factors.

1. *Broncho-Pulmonary Signs.*—In each examination group (the pre-influenza examinations, and the follow-up examination work), there were discovered a number of individuals who had more or less vague and indefinite, yet persistent and undiagnosed broncho-pulmonary signs. In the pre-influenza group, 6 per cent were thus classified; in the post-influenza group, 11 per cent. Among these 11 per cent thus classified there occurred 8 suspicious tuberculosis cases.

2. *Cardiac Defects.*—In the pre-influenza examinations, the percentage classified as having mild or severe cardiac signs or symptoms was 5; this corresponding percentage in the post-influenza group was 8.

3. *Urine Findings.*—The urine examinations among the influenza follow-up cases showed 4 per cent with albumin and casts, and 1.4 per cent with sugar.

4. *Tuberculosis Findings.*—In the examination of the 700 post-influenza patients there were recorded 10 arrested cases, or 1.4 per cent of the entire group. All of these were known previously to the influenza epidemic, and in none of them did the disease appear to have been actively and permanently lighted up. Some of them manifested a slight activity as indicated by pulmonary signs, but all of them seemed to be on the way to a re-arrest of the disease, or to have accomplished a re-arrest.

As previously noted, there were 8 cases, or approximately 1 per cent, of suspicious tuberculosis discovered in the group classified as "broncho-pulmonary signs undiagnosed."

Among the 700 patients, 13 cases, or approximately 2 per cent of hitherto undiagnosed active tuberculosis, were recorded. This is to be contrasted with an incidence for active tuberculosis in the pre-epidemic examination of approximately 1 per cent.

The Health Station intends to follow up this influenza group and to survey as many of the group as can be reached at six-month periods.

III. Epidemiology and Incidence of Disease.

The Framingham experience with influenza emphasized a number of important questions as to the relationship of influenza to tuberculosis, and brought to the consideration of the health demonstration staff a number of problems of theoretical interest, at least, as to racial and other factors possibly playing a part in the relative incidence of these diseases.

It has frequently been pointed out, on a basis of military and other experience, that it was the "husky" individual who succumbed to influenza. Does this mean that the "keep fit" doctrine is unsound? Is it really a hazard to be healthy? Is this observation based on fact, or is the apparent difference between the resistance of the healthy and the weak to an acute respiratory disease such as influenza merely a relative one? May it not be that it is not so much that the husky die, as that the weak live. The Framingham experience would indicate the likelihood of this conclusion.

It was estimated that in the population as a whole, about 12 per cent suffered from influenza in mild or severe form. On the other hand, among the tuberculosis patients, only 4 per cent had the disease. Further, among the cases of arrested tuberculosis in the community, of which there were approximately 150, only 2 per cent had the disease. From this it might be concluded that tuberculosis, and the associated relative degree of physical instability and weakness, were perhaps protective factors against the acute infection.

This experience in Framingham with tuberculosis and influenza incidence is borne out by similar findings in many sanatoria. It may also be reflected in the relative degree of influenza incidence in the colored and white races. It is known, of course, that the colored race stock presents a very high tuberculosis incidence, and it is also stated, in communities where the colored population was large, that this race stock was less afflicted with influenza than was the case with the associated white race stocks.

Does this mean that a chronic respiratory infection confers a relative degree of immunity to an acute respiratory disease?

It was stated in the army experience that in the camps "the Northern boy lived and the Southern boy died." Does this mean that the Northern boy, being more frequently a city boy, having had to a greater extent a contact with a variety of infections, and from those acquired a certain degree of immunity through chronic infection, may perhaps have had a higher resistance to the acute respiratory disease?

If this is true, is it true for all acute infections? It has frequently been observed that in typhoid epidemics the individuals in the best of physical condition are the ones most likely to succumb to the disease. Do they, however, succumb to typhoid, or to the acute respiratory infection to which they are made susceptible by a lowered resistance consequent upon the original typhoid infection?

If there is a relative degree of immunity to acute respiratory infection in certain race stocks, is it really an acquired immunity as a result of chronic infection, or is the difference to be explained purely on a basis of race stock resistance? Certainly the race stock factor plays an important part. Negroes and whites, living under practically the same environmental condition will show, for instance, a wide variation in tuberculosis incidence, the Negroes in some instances having the

disease to an extent two or three times in excess of the whites.

Other race stock variations as to tuberculosis incidence may perhaps throw some light on this problem. In Framingham, for instance, where the medical examination work showed an incidence rate for tuberculosis, including active and arrested cases, of 2.16 per cent for all examined, the rate in the Italian race stock was .58 per cent, whereas in the Irish race stock the rate was 4.80 per cent. On the other hand, the experience in Framingham indicated that there was about four times as much influenza among the Italians as among the Irish, and an investigation of influenza incidence as to race stock in other communities, particularly in Connecticut, has indicated a similar relationship.

Does this mean that the Irish race stock inherently has a low resistance to tuberculosis with a high resistance to influenza, or does it mean that the Irish race stock, having a low resistance to tuberculosis and having consequently a large amount of tuberculosis, acquires, through contact with this chronic respiratory disease, an immunity to an acute respiratory infection such as influenza?

On the other hand, does it mean that the Italian race stock, having a high resistance to tuberculosis and consequently little tuberculosis, fails to acquire a resistance to influenza?

Should it be possible to demonstrate conclusively this inter-relation of the two diseases, what would be the bearing of this finding upon our educational hygienic program? There might possibly arise a school that would advocate the propagation of tuberculosis as a protective measure against acute respiratory disease. We would, however, undoubtedly have to conclude that the immunity that would thereby be acquired would not be worth the cost. Even if our hypothesis should eventually be demonstrated, tuberculosis is too expensive a form of insurance to advocate against influenza.

IV. Summary.

A. Mortality.

1. With 2,000 cases, and an incidence of approximately 12 per cent of the population, the Framingham mortality rate from influenza for 1918 was 4.6 per thousand of population.

2. Out of a total of 118 resident and non-resident deaths in Framingham 58 per cent were males, and 62 per cent occurred in the age group of 20 to 49 years inclusive.

3. Among the deaths 62 per cent were American born, while 15 per cent of the resident deaths were Italian. On the other hand it is estimated that the Italian race stock constitutes 7 per cent of the population. There is indicated an excessive mortality among Italians, which corresponds to an excessive incidence.

4. The curve for mortality shows two markedly high points in October and December of 1918.

B. Post-Influenza Medical Follow-Up.

1. It was possible to give expert examinations to 700 influenza epidemic survivors from three to six months after the convalescence of the patients, in their homes, and partly in consultation with local physicians.

2. Eleven per cent of those examined presented persistent broncho-pulmonary signs undiagnosed. The percentage for this same factor in the pre-influenza epidemic examination drives was 6.

3. The post-influenza work indicated a prevalence of cardiac signs and symptoms in 8 per cent of the examinees; the pre-influenza percentage was 5.

4. *Tuberculosis.* (a) One and four-tenths per cent of those examined were previously known arrested cases. A few of these

were lighted up temporarily, though all of the cases seemed to be making a satisfactory re-arrest.

(b) In the broncho-pulmonary group above mentioned 1 per cent of the 700 were classified as suspiciously tuberculous.

(c) In the post-influenza examination group there were discovered 2 per cent of hitherto unknown active tuberculosis cases, this is to be contrasted with 1 per cent as the incidence of active tuberculosis in the pre-epidemic examinations.

C. Epidemiology.

1. Approximately 12 per cent of the population at large was afflicted with the disease; 4 per cent of the entire tuberculosis group in the community, including active and arrested cases, had the disease; only 2 per cent of a large group of arrested cases in the community had the disease. There appeared to be a relative degree of protection in the tuberculosis group.

2. *Tuberculosis* as discovered in Framingham has presented a wide variation in incidence on a race stock basis. For the population at large the incidence of tuberculosis, active and arrested, is 2.16 per cent; for the Italian race stock the incidence is .58 per cent and for the Irish race stock the incidence is 4.80 per cent. The ratio is as follows: Italian: Irish : : 1 : 8.

3. On the other hand, when one comes to *Influenza* incidence, the ratio of this disease in Framingham as regards race stocks was approximately as follows: Italians : Irish : : 4 : 1.

4. Is this difference in tuberculosis incidence on one hand and in the reverse incidence of influenza on the other hand to be explained purely on a basis of race stock, or does a chronic respiratory disease confer a relative degree of immunity against an acute respiratory infection?

THE GIRLS' HEALTH LEAGUE.

Dorothy, who in the November *News Letter* introduced the Girls' Health League, did not have quite space enough there to make a satisfactory explanation of the movement. It is one of the

matters which the Massachusetts State Federation of Women's Clubs has taken up with vigor, the original suggestion coming from May Bliss Dickinson, R. N., who at the instance of the Federation has developed the plans for instruction. The idea is to give to school girls real courses in Mothercraft, so that they shall not enter into the duties of later life without such instruction, which takes on a phase affording real practice.

The public schools have taken hold of the idea with energy and no less than ten states, with Canada and England in addition have established courses in the schools in mothercraft work.

One of the illustrations shows the school children eagerly listening as the school nurse gives to them a practical lesson, using a live baby for the illustration. The baby with its Teddy bear at its feet seems to be having a fine time, and well it may, for

it is in good hands, while the expressions of the children are those of interest and rapt attention.

Miss Dickinson has amplified the original plan of Mothercraft work in a way that bids fair to make it a powerful factor in the Americanization of those who have made of the United States their adopted home. Here is the school nurse speaking before a group of mothers of half-a-dozen nationalities, who have gathered in the pleasant school yard for a lecture and demonstration on the care of their babies. American mothers are by no means barred from these gatherings and indeed in them they can learn a deal that is of practical benefit. The first of such a series of lessons emphasizes the health of the children in the home and gives the reasons why they should stand, sit and walk correctly. Other lessons take up the bath, the need of attention to the teeth, and then follow instructions in personal hygiene and the great influence for good of sunshine and fresh air.

In the third of the illustrations Dorothy, who has given liberally of her spare time that the work might be properly set forth in pictures, has taken up the mechanics of dressing the baby. She exemplifies the instructions she has received, and in her hands the contented little "kiddie" is without a care or sorrow in the world.

This in brief is the story of a movement in health education that is yet in its very beginnings, but for which the future looks bright in the extreme. It is an education founded on interest and philosophical in its principles, and it addresses itself to girls and to women in formative periods of their lives.

CONVENTIONS, CONFERENCES, MEETINGS

December 16–18, New Orleans, Southern Surgical Association.

December 30–31, Boston, Mass., Society of American Bacteriologists.

1920, January —, Albuquerque, N. M., New Mexico Public Health Association.

January 1, Boston, Mass., Society for Social Hygiene.

January 8, Various places. Annual meetings of three sections of Nebraska State Association of Nurses.

January 20 —, Engineering Institute of Canada.

February —, Austin, Texas, Texas Public Health Association.

February —, Canadian Red Cross Society.

February —, Boston, Mass., Tuberculosis League.

March —, Chicago, American Conference on Hospital Service.

March 22–23, New York City, New York State Medical Society.

April —, Charlotte, N. C., Red Cross Seal Commission of North Carolina.

April, last week or first week in May, New Orleans, American Medical Association.

April 12–17, Atlanta, Ga., National Organization for Public Health Nursing.

April 20–22, Charlotte, N. C., Medical Society of North Carolina.

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WHAT ARE THE DUTIES OF THE PUBLIC HEALTH OFFICER?

In the November issue of the JOURNAL was started discussion of one of the livest topics of the day, "What are the real duties of the Health Officer." In the issue referred to Dr. Hill suggests in his article entitled, "What is the matter with the Public Health Today?" that the health officer has police powers which he oftentimes ignores and neglects to take up, devoting time to work that might better be relegated to some voluntary organization. He phrases his position in part in these terms: "Protection from disease is, by all concerned, granted to be the essential *raison d'être* of health departments. It requires the compulsory powers they already have, but the negligence of health departments to occupy this, their own field, combined with their grasping after every other form of activity, has made them too often mere laughing stocks." Again, he suggests that, "The whole-time officer who does his own proper duty against disease will have his hands full, and will find that non-compulsory fields have waiting to occupy them staunch moral supporters with time and money plentiful, who will coöperate with him in his work all the better for working themselves on these voluntary measures."

In the current JOURNAL, Dr. McCombs picks up the gage thrown down by Dr. Hill with the claim that there is only one public health, that divided responsibility can result only in lowering the standards of health administration, and that such matters as public health administration should be left in the hands of the regularly constituted public health authorities. If these officials concern themselves only with their police powers they will be accomplishing but a portion of their real duties. To limit the health officer to police work, will be leaving but little in public health work to attract the kind of men fitted to be well-trained, whole-time executives.

These conceptions are by no means exaggerated. Almost from the beginning of public health administration there has been the question of what the functions of the health officer really are. In one office of importance in days gone by, the Commissioner believed and asserted that his functions were altogether advisory, and that he did not even wish the police powers that are considered so important in these days. This has been changed, and "teeth" in the state health laws are now much in demand. In the development of public health work, a development that has been marvellously rapid, there is little wonder that the demand for new activities has been greater than

health officers with their proverbial lack of appropriations, have been able to provide. It has seemed a natural process for private agencies to try the experiments rather than to have the public officers enter into what might readily be considered problematical work. This is the course that has been found practicable in other public functions. In education it has been quite customary for some public spirited private agency to undertake the experimental work, which, on proving a success, has later become a portion of the regular curriculum or school system. No small amount of splendid pioneer work has been done by private agencies.

But, if the simile of the school may be carried a little further, a question not dissimilar to that now confronting public health authorities might be asked—"What is the function of the Public Education Department?" In the argument of this question it might be urged that this office is primarily to see that the children all attend school, and that the question of when, where or the quality of the schools themselves, might be left to some private agencies to decide. This, of course, seems absurd from the point of view of today, but our position now is the result of long experience in public school administration.

The questions of what should be the functions of the health officer, and how he shall relate the work of his office with that of other health agencies, are among the most important of the day. With the idea of securing for this problem a discussion that shall be of value to health administrators, the JOURNAL has opened its pages to Dr. Hill and Dr. McCombs, and it is to be hoped that by letters and communications other health administrators will express their views on this subject. It is suggested that communications be limited to 500 to 1,000 words and that the views of the writer be presented rather than a detailed discussion of the articles already published.

A NEW CONVENIENCE FOR JOURNAL READERS.

Beginning with this issue of the JOURNAL our readers will find on page XI, Advertising Section, under the Table of Contents for the text, a classified index to the advertising pages. This will be a convenience for those who wish to order supplies, or who desire a list of dealers from whom to invite bids, or with whom to place orders.

This occasion offers an opportunity to express a related message of great importance to members of the Association and readers of the JOURNAL. The mounting cost of printing and publishing has during the past few months compelled many publications to increase their subscription rates. In the case of the AMERICAN JOURNAL OF PUBLIC HEALTH the rates for printing the JOURNAL during 1920 will be almost double those for 1919.

The executive staff of the JOURNAL is making every effort to avoid an increase in membership or subscription rates on this account, because salaries in the public health field have not kept pace with the increased cost of living.

The two remedies which first suggest themselves are, to cut down the size of the JOURNAL or to increase the subscription rate. The executive staff of the JOURNAL feels very strongly, however, that this is highly undesirable and must be avoided if possible. Fortunately there is in JOURNAL advertising a potential solution of the problem. Advertising rates have been increased and more space has been sold.

Advertising space is valuable to the advertiser in proportion to the extent to which the readers of the periodical examine the advertisements. The more you, the readers of the JOURNAL, examine and utilize the advertisements that appear in the JOURNAL, the more space the advertisers can take and the more they will afford to pay, and the greater the likelihood of the JOURNAL weathering the storm of high production costs without increasing the subscription rate.

In spite of the high cost of doing business, your JOURNAL is larger and better than it was a year ago. Help the JOURNAL staff to continue this improvement by examining the advertisements each month and making use of the Index of Advertisers whenever you have occasion to consider the matter of supplies.

PROCEEDINGS AND DISCUSSIONS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION AT NEW ORLEANS, LA., OCTOBER 27-30, 1919.

General Sessions, October 27, 7.45 P.M.

The meetings of the American Public Health Association, forty-seventh annual, were initiated by a gathering of the members in general sessions on Monday evening, October 27, William H. Robin, M. D., in the chair. In remarks prefatory to the invocation, his grace, Rev. John W. Shaw, Archbishop of the Catholic Diocese of New Orleans, took occasion to note that the Catholic Church throughout the ages has always been in the fore ranks of medicine. "Not a few of the distinguished schools of medicine in Europe," he said, "owe their existence to our deep interest and fostering care. As we read the distinguished annals of medicine and surgery in the different countries of the world, we find that many of the sons of the church have not only reflected great glory upon their noble profession by being among its foremost champions, but have honored the church of which they also are humble, docile sons."

Chairman Robin announced that the governor of Louisiana was obliged to be absent, but extended to the A. P. H. A. meeting his most cordial welcome. The chairman next presented Hon. Martin Behrman, mayor of New Orleans.

Mayor Behrman bid the members welcome and commented on the distribution of the delegates, representing every section of the United States together with Canada, Mexico, Cuba and Panama. He spoke of the efforts of New Orleans to make itself a community safe to live in and of the campaign against yellow fever in 1905 in which with the aid of the physicians of the United States Public Health Service the city fought then the fight in which the disease was driven away, never again to return in epidemic form. Then there came the great fight against the bubonic plague, in which with the cooperation of the great government agencies, New Orleans has combated the disease and has made the city plague proof. The speaker noted that more than a million rats were killed, and sketched briefly the advantages in economy as well in bettered health.

"But today," continued the city's chief executive, "we are welcoming you to a sanitary city—to a city that holds up its head proudly and says, 'We have made up our mind not only to sanitate, but to keep on sanitating.'" He spoke of the city as the second port in the country and one which must of necessity keep its doors open. Quarantines would seriously interfere with business, so that the city has made it unnecessary now for one of the old-fashioned quarantines to occur. Those who were interested in business realized that commerce would be hampered if trade were stopped for a month at a time.

Mayor Behrman referred to the medical profession in the city, comparable to any other group in the country, he spoke of the wonderful water supply, the splendid drainage system, the low cost of domestic water, and the problems of sewage in a city at sea level, and in conclusion referred to the lessons that both the city of New Orleans and the members of the convention meeting within its precincts might gain one from the other.

Chairman Robin then presented Dr. Lee K. Frankel, president of the Association, who was scheduled on the program for the presidential address. This has already been printed in the Journal, in the November issue, pages 811 to 818.

At the conclusion of his address President Frankel assumed the chair and presented Sir Arthur Newsholme, "A guest who has come to us from across the water. It is rarely we have had the opportunity of having brought to us an authoritative message from the countries on the other side of the Atlantic. It gave us extreme pleasure, therefore, when we learned that he was to be in the country, to invite the distinguished Englishman to be our guest, and to speak on some of the health problems which have confronted him in the exhaustive work he did for so many years as the health officer of the Local Government Board in England."

The address of Sir Arthur Newsholme entitled, "Historical Development of Public Health Work in England," is presented in the current issue of the Journal, pages 907 to 918. Following his address there was orchestral music.

Some items of business occupied the remainder of the evening, the appointment of a committee to nominate the five directors whose election is required by the Constitution, and the reading of communications to the Association. Dr. Frederick Montizambert sent heartiest greetings with his regrets at being unable to attend. A poem by Dr. Stephen Smith, "At Ninety Seven," was read and minor items announced.

General Sessions, October 28, 7.45 P.M.

Symposium on Influenza.

At the second of the general sessions on Tuesday evening, President Frankel without material preamble or interludes, presented one after another the

three principal speakers, Dr. Allen W. Freeman of Columbus, O., on "Administrative Measures Against Influenza"; Dr. W. H. Peters of Cincinnati, O., on "American Red Cross Health Crusade," and Dr. Donald B. Armstrong of Framingham, Mass., on "What Medical Examination of Influenza Patients Has Shown in Framingham, Massachusetts." Their papers find place in the current issue of the JOURNAL, that of Dr. Freeman on pages 919 to 923, that of Dr. Peters on pages 924 to 929 and that of Dr. Armstrong, presented in abstract form, on pages 960 to 964. Following the papers came the general discussion of them and of the influenza situation.

DR. HAMILTON P. JONES of New Orleans, La., was the first speaker in the discussion, stating that pathogenic germs are not normal to the mouth, naso-pharynx or respiratory tract. Although they are commonly found in secretions from these localities, their presence is looked upon with complacency in spite of the fact that the harborers of them are always either potential cases of this disease or carriers. "In my experience as chief of the Medical Service at Fort Bliss," said the speaker, "here in the recent influenza outbreak, all true cases of influenza were clinically cases of broncho-pneumonia, invariably demonstrable as such by physical examination of the chest and the use of the X-ray." The clinical, laboratory bacteriological and cultural examination of the nose, mouth, lung secretions, blood counts and cultures showed practically identical findings in all cases, so that a differential diagnosis could not be made except on the basis of the prognosis; that is, if the case was apt to get well, it might be called influenza; if not, pneumonia. Routine examinations of cultures taken from the naso-pharynx for pneumococci, hemolytic streptococci, *Streptococcus viridans* and later, that is in December, for a new streptococcus, which we called for lack of a better name, a methemoglobin—producing streptococcus, showed that certain individuals apparently had a higher percentage of carriers of these organisms than others; that there was a definite relation between the number of carriers in a given regiment and the number of cases of pneumonia entering the hospital, so that the higher the number of carriers the greater number of cases of pneumonia, and the greater the number of deaths, post mortem examinations of which showed one or more of the above organisms in the affected area.

Dr. Jones outlined a treatment of spraying the nose three times daily with a 2 per cent solution of dichloramine T in albolene, made fresh every day, and painting the tonsils with a 10 per cent watery solution of sulphate of copper three times a day, and giving the patient a small bottle of sulphate of copper to be used as a mouth wash and gargle. The speaker noted the increase in hospital admissions in broncho-pneumonia throughout December and January and in consequence of which in February a general order was passed for the bacteriological examination of all the men, some 14,000. After 4,000 men had been examined and 250 carriers picked up, it was concluded that the work would take too long, so that a general order was then issued for all men in the division to be given some form of nasal and oral treatment by their medical officers. The treatment was generally followed with the result that in February there were 82 cases of broncho-pneumonia admitted, in March 9 and in April none.

COL. FREDERICK GUEST of London, Ont., spoke next with reference to preventive means used by him in a hospital overseas in September and October, 1918. "With no orders issued as to the means we should take," said the speaker, "I with my own initiative issued my own orders to the hospital which I had the honor to command. It had 4,200 beds and with the personnel numbered more than 5,000 individuals. In other camps surrounding the district they were dying off at the rate of eight to ten a day. . . . My medical officers took charge of the patients and every patient in this convalescent hospital was looked over by his medical officer. . . . The throat and nasal cavity were examined and if any signs of infection were found, the patient was immediately attended to. . . ." To this care and to the good ventilation Col. Guest attributes the small incidence of the disease, only 100 cases of influenza and eight deaths. The speaker agreed with Dr. Freeman about the importance of close attention, isolation, fresh air and good nourishment.

DR. H. L. ROCKWOOD of Cleveland, O., called attention to the opportunity afforded by the meeting to press home the remarkable effect of proper ventilation, and made note of how even physicians neglect this very simple precaution. He had been at a meeting of an academy of medicine with 180 physicians, in a comparatively small room with little or no ventilation. Most public halls are not properly ventilated, and the same is true of private residences. He spoke especially of how in Cleveland through advertisements and special officers who attend meetings, the city is trying to preach the gospel of ventilation and the regulation of room temperature.

DR. LOUIS I. DUBLIN of New York City spoke with reference to relationships between influenza and tuberculosis as suggested by Dr. Peters. He related some of the experiences of his company—the Metropolitan Life Insurance Co. "We made an

examination of the population at large," he said, "in the first nine months of 1918 as compared with the first nine months of 1917. It covered a large number of communities, including the state and city of New York. We found the mortality from tuberculosis was slightly lower in the period in 1918 than in 1917, not a significant difference." Then the influenza epidemic began, and in the remaining three months of the year the mortality increased 16 per cent from tuberculosis against a decrease of 5 per cent in 1917. In the early spring of this year, and continuing with increasing improvement month by month, a startling decrease in the mortality from tuberculosis is shown as compared not only with 1918 but the corresponding months for five years back.

Dr. John B. Sewell of Baldwin, La., touched on the points of nervous condition during the disease, and the long period of convalescence. Dr. Milton J. Rosenau spoke of the need of further study of the disease and noted that the Metropolitan Life Insurance Co. has provided means for investigations into the mode of treatment of the disease and its complications. A commission has been appointed consisting of Drs. McCoy, Frankel, A. S. Knight and Dr. Rosenau, to which group there have been added, Professor E. L. Jordan and Dr. W. H. Cross. Work is under way in different places. Dr. Charles J. Hastings discussed a number of points. He questioned the safety of douching the throat and nose, since the solution that is strong enough to be efficacious may create an irritation. He questioned on Dr. Armstrong's suggestion about whether the husky or the frail person is the safer, and suggested, that bed being the strategic place in which the human being can combat the germs, the frail person would be the first to seek that place, while the strong man lets the germs get into the ascendency before he yields.

The line of the argument of Dr. S. A. Shoemaker of Bufftown, Ind., was to caution health officers to look after the subsistence of his community, and make his people if he can, eat moderately and of plain foods and take plenty of rest and live a quiet life.

Dr. John Dill Robertson of Chicago found the figures of the patients in Chicago to agree with those of Dr. Armstrong. He advocated the present time as valuable for health education of the public, and stated that in Chicago special courses for the education of nurses have been given and 800 women took advantage of the first series with 1,500 women at work now in the courses in a second school.

In the summing-up by the earliest speakers, Dr. Freeman pleaded an "alibi" in the matter of douching of nasal passages, Dr. Peters said that he hoped he had not given the impression that the tuberculosis cases were after-effects of influenza, for these are always with the health officer.

In the business session of the evening, the committee to nominate five new directors whose terms are to expire in 1922, presented through its chairman, Dr. W. A. Evans of Chicago, the names of Dr. Haven Emerson, New York City; Dr. John A. Kappelman, Canton, O.; Dr. Henry F. Vaughan, Detroit, Mich.; Dr. John Dill Robertson, Chicago, Ill.; Dr. M. P. Ravenel, Columbia, Mo.

Dr. Eugene R. Kelley of Boston, Mass., was nominated for director in the group whose terms expire in 1920, in place of Dr. J. N. Hurty who is a director *ex-officio*, being a former President of the Association. These officers were declared elected.

For the concluding item in the business of the evening the secretary exhibited a chart showing the growth of the Association in membership during the past nine years. This chart, a copy of which appeared in the *News Letter* for November, shows that the present number of members is 3,500.

General Sessions, October 29, 2.00 P.M.

The third meeting of the general sessions was called to order on Wednesday afternoon by President Frankel. The general subject of the papers and discussions was the "Coördination of Federal Health Activities." Dr. W. H. Rankin of Raleigh, N. C., was the first of the speakers and discussion followed at once. The paper itself, entitled "A Supreme National Need: Coördination and Enlargement of Federal Health Activities," may be found in the November number of the Journal, pages 819 to 822, while the discussions proved to be of such value that they are presented in liberal abstracts in the order in which they came, on pages 973 to 984 of this issue. The speakers were Dr. S. J. Crumbine of Topeka, Kan.; Dr. B. S. Warren of Washington, D. C.; Dr. W. S. Small of Washington, D. C.; Dr. Anna E. Rude of Washington, D. C., and Dr. Frederick R. Green of Chicago, Ill.

Following the discussion Dr. L. L. Lumsden was called upon by the chairman for his paper on "Public Health Perspective," which may be found on pages 930 to 936 of this issue of the Journal. There were brief discussions of Dr. Lumsden's paper by Dr. R. L. DeSaussure of Rome, Ga., and Dr. M. P. Ravenel of Columbia, Mo., the latter of whom presented this motion:

Moved, That the Board of Directors of this Association be requested to appoint a committee of five to initiate and outline a campaign based on the suggestion made in Dr. Lumsden's paper to save 250,000 lives in 1920. The motion was seconded by Dr. Charles J. Hastings of Toronto, Ont., and was carried.

Dr. W. A. Evans presented the final report of the Committee on Influenza (page 987 of this issue) which was adopted. Dr. Evans also presented the report of the Committee on State Health Associations, which was received and placed on file and the committee continued. The final business of the meeting was the report of the Committee on Resolutions, presented by Dr. Peter H. Bryce of Ottawa, Ont. The Resolutions as adopted find place below.

The fourth gathering of Association members in General Sessions, on Wednesday evening, October 29, 1919, was devoted to a symposium on malaria. The discussion that accompanied the papers will be given in a future issue of the JOURNAL in connection with the papers themselves. Some items of business, the acceptance of reports and the installation of incoming officers, concluded the exercises of this portion of the meetings.

RESOLUTIONS ADOPTED BY THE AMERICAN PUBLIC HEALTH ASSOCIATION, NEW ORLEANS, LA., OCTOBER 27–30, 1919.

RESOLUTION I.

Malaria.

WHEREAS, The American Public Health Association recognizes the importance of lessening the ravages of malaria in the countries represented in the Association, and welcomes every effort for the application of scientific methods for lessening such ravages, therefore be it

Resolved, That the American Public Health Association desires to assure the American Anti-Malarial Association, the annual meeting of which is to be held in Florence, Alabama, in May, 1920, of its sympathy with the objects of such Association, and of the support of its efforts along such lines as may be found possible within the limits of the powers and facilities of the American Public Health Association.

RESOLUTION II.

Physical Training.

WHEREAS, The physical examination of school children and drafted men in the armies of the countries represented in the American Public Health Association has revealed a large amount of remediable defects, and that, therefore, legislation is necessary, whereby provision may be made for the correction of such defects by physical training and, whereas, it is further desirable that the youth of these countries be educated in the duties of citizenship, be it

Resolved, That steps should be taken to provide means to these ends under the direction of properly qualified persons, and that arrangements, therefore, be made through coöperation by the several federal, state and municipal governments.

RESOLUTION III.

Laboratory Use of Dogs.

WHEREAS, There is now before the Congress of the United States a bill to prohibit the use of dogs for scientific purposes, and it is the opinion of the American Public Health Association that the passage of such a measure would seriously hamper medical and surgical progress, therefore be it

Resolved, That this Association strongly deprecates the passage of such legislation and that the Association forward a copy of this resolution to the chairman of the Judiciary Committee of the United States Senate, and that the President of the Association be instructed to appoint a committee of three to confer with such committees of Congress as may have this bill under consideration and to urge the views of the Association on said committees.

RESOLUTION IV.

Health Insurance.

WHEREAS, In the presidential address of Dr. Lee K. Frankel, President of the American Public Health Association, and in the paper presented by Sir Arthur Newsholme, lately the chief medical officer of the Local Government Board of England and Wales, the question of health insurance was dealt with and the need illustrated for some system whereby the health of the people of all the countries represented by the American Public Health Association may receive the greatest degree of care which science makes possible; and

WHEREAS, It has been shown in various countries that this can only be done by governments assisting through legislation the medical and social agencies at present existing; be it

Resolved, That the American Public Health Association representing, as it does already through its members, a large part of the official work already carried on through Federal, state, and municipal authorities, does hereby urge the appointment of committees in the several countries represented in the Association by their federal governments, to study existing methods for the preservation and improvement of the health of the people of these several countries, such as hospital facilities, public health activities, charitable institutions and compulsory health insurance, with a view to reporting some adequate plan for coördinating already existing activities and for extending the application of scientific and social agencies for accomplishing the desired ends.

RESOLUTION V.

Public Health Service Salaries.

WHEREAS, The present and future efficiency of public health work is dependent upon the efficiency of the personnel engaged therein, and

WHEREAS, The rates of pay of the officers of the United States Public Health Service are based upon a scale fixed in 1908, while the cost of living has advanced 75 per cent since 1913, according to government reports; and

WHEREAS, Numerous resignations are taking place in the Public Health Service, and it is impossible to obtain and retain a qualified personnel at present rates of compensation; and

WHEREAS, These conditions are a serious menace to the conduct of Federal public health work, be it

Resolved, That the American Public Health Association does hereby urge Congress to enact such legislation at an early date as will increase materially the pay of officers of the United States Public Health Service, substantially as contemplated by a bill (H. R. 9204) now pending before Congress designed "To increase the pay of commissioned officers and enlisted men of the Army, Navy, Marine Corps, Coast Guard and Public Health Service"; be it

Resolved Further, That copies of this resolution be sent to the respective chairmen of the committees in Congress on Military Affairs, Naval Affairs in the House and Senate and on Interstate and Foreign Commerce in the House, and Public Health and Quarantine in the Senate.

RESOLUTION VI.

National Medical Examination Week.

WHEREAS, The people of the several countries represented in the American Public Health Association have not as yet been effectively aroused to the necessity for periodical physical examination; be it

Resolved, That the American Public Health Association urges that a national medical examination week be appointed during the month of May, 1920; and that this Association unite in an educational movement with all national health, social and medical agencies of these several countries for the furtherance of this end.

RESOLUTION VII.

Leprosy Act.

Resolved, That the American Public Health Association tenders to the United States Public Health Service its most hearty support and coöperation in carrying out the provisions of the act of Congress approved February 3, 1917, entitled:

"An Act to provide for the care and treatment of persons afflicted with leprosy and to prevent the spread of leprosy in the United States."

Resolved Further, That we urge that the provisions of the said act be carried into effect at the earliest practicable date.

RESOLUTION VIII.

Control of Plague.

WHEREAS, The American Public Health Association recognizes the importance of thorough eradicative measures for the control of plague in the seaports and districts where infection is likely to be introduced and spread by rats and ground squirrels, be it

Resolved, That adequate means be voted by the proper governments, whether state or Federal, for destroying the carriers of this disease, and that this resolution be brought before the United States Public Health Service, and before the health departments of several sea-board states, where danger may exist through the importation of plague from foreign countries.

RESOLUTION IX.

Coördination of Federal Health Activities.

WHEREAS, It is believed that the promotion, maintenance and protection of health in its citizens is one of the fundamental functions of civil government; and

WHEREAS, lack of coördination in any national program of administration and of orderly balanced expansion of the functions of the Federal health services in the United States has resulted from the present distribution of such functions among various departments of the government be it

Resolved, That the American Public Health Association thereby does urge that measures be taken to assure for the future a national health program and a coördinated Federal health administration; and that to accomplish these ends a standing committee of members of the American Public Health Association be appointed by the President of the Association to study the needs of the national health situation, to confer with other health and social agencies, and do whatever lies within its power to secure the appointment of a special congressional commission on the coördination of the Federal health activities along the general lines of the so-called France Bill.

RESOLUTION X.

Venereal Disease.

WHEREAS, The American Public Health Association recognizes the work of the U. S. Army and Navy in combating venereal diseases during the period of the war, and the important influence of this work upon the progress of control of these diseases in civil life; be it

Resolved, That the Association strongly endorses the program for the protection of our armed forces in future years as outlined in the report of the Committee on Venereal Diseases of the Section of Public Health Administration and pledges its support of civilian coöperative measures for making these programs effective; also that the Association heartily endorses the program of the United States Inter-Departmental Social Hygiene Board and of the United States Public Health Service for combating venereal diseases, and hereby offers the active coöperation of its officers, members and the Committee on Venereal Diseases in promoting this program and urges the coördination of Federal and state activities everywhere in the United States to this end.

RESOLUTION XI.

Courtesies Extended the A. P. H. A. at New Orleans.

WHEREAS, The President and members of the American Public Health Association in session at New Orleans desire to place on record their high sense of the courtesies that have been extended to them by the Governor and Executive of the state of Louisiana, also the State Department of Health and of its officers; by the Mayor, City Council, Medical Officers and officials of the city of New Orleans, by the medical profession of the state and city for their many attentions; by the entertainment committee and ladies of New Orleans for their many kindnesses; by the Red Cross, the Elks Club, and the Chess, Checker and Whist Club; and by the press for their splendid reports of meetings; be it

Resolved, That the American Public Health Association does hereby convey to these various persons, authorities and organizations its sincere thanks for the constant kindnesses and courtesies afforded to the Association as a body, and to its officials, members and their friends, individually.

Resolutions adopted by the Sections will appear in later issues of the JOURNAL.

DISCUSSION OF DR. RANKIN'S PAPER IN GENERAL SESSIONS, WEDNESDAY, OCTOBER 29, AT 2.00 P.M.

Among those who discussed Dr. Rankin's paper on "The Coördination and Enlargement of Federal Health Activities," S. J. CRUMBINE, M. D., Topeka, Kan., was the first speaker, who complimented Dr. Rankin on his presentation of the subject. He said that the events of the past few years have emphasized the situation which he set forth.

"Now that we are for the first time able to evaluate the results of the draft, certainly it should arouse our insistent effort that this unfortunate situation be no longer continued. I think one of the most notable addresses of the war, made by Britain's great premier, voices in a sentence the situation which not only confronts Great Britain but every civilized nation of the earth, including the United States, and should make us act with the same prompt decision with which Great Britain has acted. Lloyd George declared that the secret of the strength of the nation and the secret of National recuperation is conditioned upon the health of the people. I am sure every public health man in these latter days feels the increasing responsibility that rests upon health officers and boards of health, both Federal, state and local.

"It was with this feeling that at the annual conference at Atlantic City, much of the time and attention were given this subject as to what state officers might do to assist in bringing about a better condition of Federal health activities. The conference appointed a working Executive Committee and charged it with the responsible task of joining itself with other agencies, to the end that working with other agencies, it might bring about some sort of a formulated plan to meet the situation.

"As chairman of the Executive Committee and speaking for that organization, we wish to join ourself with like agencies, particularly this great organization, and, working together, bring about this thing that is so greatly needed. There is no one thing we have in mind that we insist upon. The only plan we have is grounded upon the belief that there must be a diagnosis before treatment is applied. So we welcome such agencies as may unite with us or we with them in making a study of the situation. After we have decided and mutually agreed upon a certain plan then we may throw our force and energy into it.

"I might, I think, with perfect propriety say in anticipation of any charges against the state health officers that they may have some selfish motives, that before our committee took any action we entered into a solemn covenant that whatever plan was adopted, under no condition would any member of the Executive Committee be a candidate or accept an appointment under such legislation as might finally be adopted. We come with unselfish devotion to this task with the hope that the unfortunate situation may be speedily relieved."

In taking up his part of the discussion of Dr. Rankin's paper, DR. FREDERICK S. GREEN of Chicago presented first a synopsis of the efforts that have been made during the past fifty years towards a Federal Health Service. This, however, was not read but was filed as a document important to the calm consideration of the general subject. It is here presented:

"Efforts for constructive Federal public health legislation, which have now been going on for nearly

half a century, are divided into three periods of more or less continued effort, with a considerable interval between each. During the last forty-eight years many measures have at different times been before Congress. The first mention of this question in the American Medical Association was in 1871, when Dr. George Houston, secretary of the California State Medical Society, introduced a resolution calling attention to the recent establishment of state boards of health in Massachusetts and California, the only states which up to that time had created such bodies, and recommending that the Association take steps, as soon as six states should establish state departments of health, to bring about the formation of a national health council made up of representatives from the various state boards. In 1872, Dr. T. M. Logan of California, chairman of the Committee on a National Health Council, reported that four states—Massachusetts, California, Minnesota and Virginia—had established boards of health. At the same meeting a Dr. J. C. Tucker of California introduced a resolution asking Congress to establish a national sanitary bureau and presented a bill drafted for this purpose, no copy of which appears in the record. Dr. John S. Billings says that a bill for a national health organization was prepared by Dr. C. C. Cox in 1871 and was introduced into the Senate in 1872. This bill provided for a National Sanitary Bureau under the Department of the Interior. While it was pending before Congress, the yellow fever epidemic of 1873 demonstrated the necessity for an effective national quarantine service and resulted in a number of conferences and hearings before Congress. Another yellow fever epidemic in 1878 again brought this question into prominence and resulted in the formation of a commission, financed by Mrs. Elizabeth Thompson, to investigate the cause of the epidemic. At the same time Congress appointed special committees on epidemic diseases, also a special Congressional Commission to investigate the causes of yellow fever. In the Senate, Senator L. Q. C. Lamar of Mississippi introduced a bill creating a Department of Public Health. Before this bill was acted on the special Congressional Commission on Yellow Fever presented its report, recommending a national quarantine system and a central health authority at Washington. Senator Harris of Tennessee introduced a bill creating a Bureau of Public Health, the head of which should be the Director-General of Health with a board of health consisting of seven members appointed by the President and the Surgeons-General of the Army and Navy. This bill passed the Senate but was defeated in the House. In the meantime, Mr. McGowan of Michigan introduced a bill, late in the session, establishing a National Board of Health. This bill passed both houses in the last hours of the Forty-Fifth Congress and became a law March 3, 1879. It created a National Board of Health consisting of seven members appointed by the President, one medical officer each, from the Army, the Navy and the Marine Hospital Service, and one officer from the Department of Justice. Its duties were to obtain information and advise governmental departments on public health questions. It was also directed to report to Congress a plan for a national health organization. This board, the only national health body this country has so far possessed, was organized on April 2, 1879, and remained in existence until 1885. No appropriations, however, were made after 1883, so that the board really had only four years of active existence. There has been much speculation as to why this promising attempt at the organization of a national department of health failed so completely. Study of the proceedings of the board, as well as of the evidence presented before the Congressional Committee, shows three essential causes for the failure. These are:

"(1) there was apparently no one on the board who had any constructive or administrative ability or any conception of the organization of a Federal Department of Health as a part of the executive branch of the government. The only attempt that was made to comply with the instructions of Congress to report a plan for organization, appears in the first report submitted by the board in the form of a resolution adopted by the American Public Health Association, and a letter written by the Board of Directors of the American Association for the Advancement of Science, both of which recommend that there should be no change in the plan of organization of the National Board of Health. As this body was intended only as a temporary organization, it is highly probable that this opinion was inspired by members of the board for the purpose of preventing any change in their status.

"(2) The reports and proceedings of the board show a failure to appreciate the difference between the individual relations existing between a physician and his patient, and the public relations existing between the medical profession and the state. The board appropriated money and undertook to carry on investigations on all sorts of trifling and irrelevant subjects. For instance, one of the problems dealt with at length in one of the annual reports is "The Chemistry and Morphology of Spring Water." There are also long clinical reports on cases of diphtheria, typhoid, etc. This is not strange when one recalls that in 1880 and 1881 preventive medicine, as we now understand it, practically did not exist, but it shows a lack of ability on the part of the board to grasp the possibilities of their opportunity.

"(3) The board early became involved in a contro-

versy with Dr. John B. Hamilton, at that time surgeon-general of the Marine Hospital Service, about the question of jurisdiction over quarantine and quarantine stations. Evidently this controversy was carried on with a personal bitterness characteristic of the times. Dr. Hamilton was located in Washington and undoubtedly had powerful political influences back of him. This probably explains the failure of Congress to make appropriations for the board after 1883 and for its consequent demise in 1885 through failure of Congress to make appropriations for its maintenance.

"In 1886, Dr. Robert T. Davis of Massachusetts introduced a bill providing for a Bureau of Public Health in the Department of the Interior, under a Commissioner of Health authorized to organize a permanent national board of health, and to relieve the Marine Hospital Service from further duties in this direction. No action was taken on this bill. At the St. Louis meeting of the American Medical Association in 1886, Dr. John H Rauch of Illinois, chairman of the Section on State Medicine, in his address stated that three different bills had been introduced during the pending session of Congress for the creation of a national health service, but that there was little hope of any of them receiving favorable consideration.

"Again interest lapsed until 1891, when Dr. W. L. Schenck of Topeka, in his address as chairman of the Section on State Medicine of the American Medical Association, urged the creation of a department of public health to be formed by the coalition of the Marine Hospital Service, the Bureau of Education, the Divisions of Vital Statistics, Animal Diseases and the Weather Bureau into a single department. He stated that a bill for this purpose had been introduced into Congress during the preceeding year. This is the first suggestion of the organization of a national department of health by the assembling of existing bureaus and divisions. In 1892 a petition was presented in Congress by John Sherman and Mr. John A. Caldwell, in the House, accompanied by a bill providing for a national department of health in the Treasury Department, to consist of three scientific men appointed by the President, one representative each from the Army, Navy and Marine Hospital Service and one member from the Department of Justice. This bill received no consideration, the principal objection being the expense involved. At the same time, Mr. Caldwell introduced a bill in the House providing for a National Department of Health and a Medical Secretary.

"In 1896, Dr. Jerome Cockran of Alabama, chairman of the American Medical Association, Standing Committee on a National Department of Health, urged the Association to adopt the policy of the gradual development of the Marine Hospital Service into a National Health Department. In 1897, Dr. U. O. B. Wingate of Milwaukee, chairman of the committee, in place of Dr. Cockran who had died during the preceding year, submitted a lengthy bill providing for a National Department of Health under a Commissioner who should be a regularly educated physician holding membership in one or more reputable sanitary or medical associations in the United States. This bill was very long, and contained detailed provisions regarding quarantine but little in the way of specific plans for organizations. The yellow fever epidemic of 1897 stimulated interest in the bill. It was introduced into the Senate by Senator Spooner of Wisconsin and into the House by Mr. Otjen. The campaign in favor of this bill was interrupted by the Spanish-American War and the discussion was dropped.

"Nothing further was heard on this subject for twelve years. In 1910 Senator Robert L. Owen of Oklahoma introduced into the United States Senate, Senate Bill 6049. This bill, the original Owen Bill, provided for a Department of Health under a Secretary of Public Health, in which should be assembled the Public Health and Marine Hospital Service, the Revenue Cutter Service, the Medical Staffs of the Pension Office, the Indian Bureau and the Department of the Interior, Old Soldiers' Homes, Government Hospitals for the Insane, Freedman's Hospital, Bureaus of Entomology, Chemistry, Animal Industry of the Department of Agriculture, the Hospitals of the Immigration Bureaus of the Department of Commerce and Labor, the Emergency Service of the Government Printing Office and all other agencies in the United States government for the protection of human or animal life, except the Medical Department of the Army and the Bureau of Medicine and Surgery of the Navy. A number of hearings on this bill were held during the following year but it was never reported out of committee.

"The second Owen Bill, Senate Bill 1, was introduced by Senator Owen April 6, 1911. It provided for a Department of Health with a Director of Health and a Commissioner of Health to be appointed by the President, the director to be an executive officer and the commissioner a skilled sanitarian. A number of bureaus and divisions were to be transferred to the new department and the President was authorized to transfer at any time any other that he might see fit. This bill was referred to the Senate Committee on Public Health and National Quarantine where it remained for nearly a year, at the end of which time it was reported out favorably but with amendments which practically made it a new bill. It now provided for an independent establishment to be known as

the United States Public Health Service, with a Director at the head and three Assistant Commissioners who were to be the present heads of the Public Health Service, the Bureau of Chemistry and the Division of Vital Statistics. Provisos were inserted to meet the objections that had been raised against the original bill on the part of various agitators. This bill was voted on February 3, 1913, the vote being a tie, 33 to 33.

"On April 7, 1913, Senator Owen introduced another bill providing for a Department of Health with a Secretary and Commissioner of Health as an assistant. The Public Health Service from the Treasury Department, a part of the Bureau of Chemistry from the Department of Agriculture, and the Division of Vital Statistics from the Department of Commerce and Labor, were to be transferred together with any other bureaus or divisions that the President might authorize. This bill was also referred to the Senate Committee on Public Health and no further action taken.

"Practically the same bill was again introduced by Senator Owen in 1916. Owing to the war, and the diversion of public and professional interest, no special attention was given to this subject until last summer, when, as you know, three bills were introduced into Congress, two in the Senate, one by Senator Owen and the other by Senator France, and one in the House by Mr. McDuffie of Alabama. As these bills are, doubtless, fresh in your minds, I will not discuss them in detail.

"Such is the history of the efforts for the creation of a department of health. What lessons can be drawn from the experience of half a century? The first and most obvious one is that the only time that a bill creating a national health organization was adopted by Congress was in 1879, following the report of the special Congressional Commission appointed to investigate the great yellow fever epidemic of 1878. This fact is significant. The only time that the members of Congress were convinced of the necessity for action, was after the creation of a special commission of members of Congress who investigated the subject and reported, not from the standpoint of physicians or public health officials, but from the standpoint of practical legislators.

"The second significant fact is that at some time during the past fifty years practically every one of the plans now proposed has at some time been discussed and formulated in legislation. The creation of a department of health *de novo;* the formation of a department by the transfer and the assembly of existing bureaus and divisions; the creation of an independent commission under a commissioner appointed by the President; the creation of a bureau of health under either the Treasury Department or the Department of the Interior; the creation of a joint department of health and education, and the gradual development of what was formerly known as the United States Marine Hospital Service, and what is now known as the United States Public Health Service, into a National Department of Health—all of these alternatives have been proposed and discussed at great length. Probably no more pertinent criticism could be made on our efforts than the mere statement of the fact that after fifty years of discussion, each of these various propositions still has its advocates and supporters and that there is today no reliable data or collection of evidence on which to base the opinion that any one of these plans is better than any other. In other words, the present argument for a national department of health or for any particular form of it, rests entirely on personal convictions, prejudices and opinions, rather than on any collected and carefully studied mass of evidence. The subject has, in a word, been treated as a question for partisan discussion rather than for scientific investigation and critical study.

"The third general conclusion, a corollary of the second, is that in all of the efforts which have been made for better legislation on this subject, the medical profession and those interested in public health legislation have been divided into two or more rival camps, and bitter controversies have been carried on regarding the relative merits of the measures proposed. This can easily be read between the lines in the Proceedings of the American Medical Association, the American Public Health Association and other bodies interested, while the recent discussions on this subject are within the memory of most of those here present. This is the result of the unscientific and partisan manner in which this question has been considered, particularly noticeable in the discussion on the Owen bills from 1910 to 1913. Senator Owen himself, as I know, took the broadest view of the problem, and was at all times most willing and anxious to modify his bills so as to include the best methods which could be worked out by the leading public health men of the nation. The five bills which he introduced differed widely in their provisions. Yet from the attitude of some of the disputants many persons were led to believe that the "Owen Bill" was a definite and constant plan, that it was something sacred, holy and above criticism, and that any efforts to suggest improvements, or even to modify its verbiage, constituted disloyalty to the medical profession. Yet this problem calls for the coolest judgment and most unbiased criticism. The creation of an effective national health organization involves three distinct questions: viz., a public health question, a legal question and an administrative question. To devise a governmental

public health machinery which will functionate effectively will require the united efforts of the best brains in the public health field, the legal profession, and the administrative forces of the country. To force this question into the field of partisan politics is simply to invite defeat and disaster.

"The fourth general conclusion is, that probably our greatest single mistake as a profession is attempting to secure constructive legislation through our own efforts rather than through the awakening and creation of public interest, the education of the legislators and the public, the correlating and coördinating of all the professional, health and philanthropic organizations interested, and the steady building up, through argument, reasoning and demonstration, of favorable public sentiment."

In his verbal remarks Dr. Green called the attention of the company assembled to some of the general principles involved in the general question of a Federal health department. "The history of this movement," he stated, "shows that there have been prepared and introduced into Congress, since 1870, twenty-five or thirty different bills aimed at the extension and reorganization of public health activities. Many methods have been proposed: The extension of the United States Public Health Service, the creation of a Department of Health, the creation of an independent Commissioner of Health, the creation of an independent Board of Health, the creation of a Bureau under some of the existing departments—all these plans have been suggested and advocated at some time. In every case the plan advanced has been the idea either of an individual or of a comparatively small group. Since 1879 when, following the yellow fever epidemics of 1872 and 1878, a Congressional Commission was created to report on the entire subject, there has been no attempt to survey this entire field of Federal public health work, to study it from every possible angle and to devise a plan that would be constructive and that would take into account all the factors implied in this problem.

"To review the history of the last forty-eight years would require too much time at present. The fact remains that after forty-eight years of discussion of this question, the three fundamental questions lying at the bottom of any constructive efforts for the reorganization of public health activities have not yet been settled. These are:

"(1) What can the Federal government do under its constitutional powers for the public health? Where can the line be drawn between Federal and state authority in this field?

"(2) What is the Federal Department doing today for the protection and conservation of public health? The public health work now being done is scattered through half a dozen different departments. There is no one place where a synopsis of the entire activities of the government can be found.

"(3) What should the Federal government do for public health and what form should its reorganized activities take?

"Until these three questions are settled, or until we have more light on them than at present, to attempt to construct any kind of national public health machinery would be as futile as to try to construct a machine before you knew what work that machine had to do. Heretofore, efforts for constructive legislation in this direction have been limited to individuals or groups of individuals. As a result, there have been widely different opinions. No clear conception has ever been formulated as to the form which constructive Federal health activity should take. No better proof of this could be found than the discussion that has taken place during the last hour on this platform. With no question as to the honesty and sincerity and good intentions of the three representatives of three different departments of the executive government who have appeared on this platform this afternoon to present their views of the case, it is evident from their discussion that the fundamental principles of health organization have not been settled, and that there is overlapping, duplication and confusion in the Federal government at present.

"Now, when the representatives of three of the great executive departments of our Federal government differ as widely as they do in their conception of what constitutes the function of their particular division of the Federal government, the principles on which that legislation should be based, and the object of the Federal machinery for the conservation of public health, how is it possible to evolve any scheme on which any kind of a constructive plan can be based until we have settled those fundamental principles? How are they going to be settled? By *ex parti* statements and arguments as in the past? Is there any prospect that we will get ahead any faster in the next fifty years than we have in the last half century? Isn't it clear that the only way to make any progress will be by the creation of a governmental commission, which can employ experts and collect a mass of data from which can be worked out the principles on which a well organized public health structure can be reared? Any other method would be equivalent to attempting to make a diagnosis and prescribe for a patient before securing all possible information regarding the patient's condition.

"Without attempting to discuss the details of the proposed Federal health legislation as set forth by Dr. Warren, or of the subject as seen by the representative of the Department of Education, or by

Dr. Rude in her presentation of the subject as seen from the standpoint of the Children's Bureau, the supreme need in the public health situation today is to create an official government commission before which all of these plans can be presented, which can collect all the evidence available and secure all the expert knowledge possible, and which can compile a report that will contain the essential facts on this question and that will make recommendations for real constructive effort.

"Such a commission is created in the Concurrent Resolution introduced by Senator France in the Senate and by Mr. Denison in the House, providing for a congressional commission with power to summon the heads of all departments to appear before it, to collect all facts regarding the laws under which each bureau is operating, the number of employees and what they are doing, the amount of existing appropriations and what is being accomplished. It is instructed to make a report to Congress with recommendations as to what constructive action should be taken.

"This, to my mind, is the first really constructive proposition that has been made in the Federal public health field. It is the only scientific solution of the situation. If scientific methods mean anything, they mean the collection of all the available knowledge on the subject before forming an opinion.

"It is the only economical solution to the question. This commission might have to study the situation possibly a year, but at the end of that time we would have some kind of basis for our opinion. Certainly we cannot make progress any slower than we have done.

"It is the only practical solution of the problem. There are before Congress seven different bills providing for some kind of reorganization of public health activities calling for appropriations of from two and one-half to one hundred million dollars. They call for a total appropriation of between two hundred and fifteen and two hundred and twenty million dollars. As Dr. Rankin has told you, the Federal government faces a total deficit of three billion dollars on the first of next July. The Republican party is in the majority and the Democratic party controls the administration. Is it conceivable that under these circumstances Congress is going to adopt any law creating a new executive department and appropriating millions of dollars for it? On the contrary, the Republican majority will do everything in its power to decrease the amount of the appropriations between now and the next presidential election. There is not the slightest prospect of any of these bills being passed during the next eighteen months.

"Unless we take advantage of this interval to collect some material which will serve as a guide for the future, we will face the same situation next year that we do now. Before the next Congress, there may be fourteen bills instead of seven bills and we are going to be just as much in the dark then in regard to the fundamental principles on which constructive health legislation should be based as we are now.

"The only rational constructive program at the present time, is to take advantage of this interval of eighteen months to do what we should have done long ago, to get behind that Resolution and to do everything we can to secure its passage, to aid the commission to collect all of the available information in regard to Federal health activities and to give us for the first time a sound, scientific basis for constructive effort in this field."

In continuing the discussion of Dr. Rankin's paper B. S. Warren, assistant surgeon-general, United States Public Health Service, presented the following review of development of national public health activities in this country:

"In the discussion of the 'Coördination and Expansion of Federal Health Activities,' I believe a brief historical outline of the development of Federal health activities will furnish the best point of departure. Until 1879 the Marine Hospital Service exercised practically all of the Federal health functions. In that year an act was passed creating a National Board of Health to continue in force for four years. This board ceased to function in 1882, because Congress failed to appropriate money for its maintenance. The act creating the National Board of Health was repealed in 1893. When the National Board of Health ceased to function in 1882, the Marine Hospital Service under authority of the act of 1878 assumed Federal health functions. The epidemic fund was first authorized in 1882. Other laws were passed expanding the health functions of the Marine Hospital Service. The most important of these were the act of 1890 to prevent the introduction of contagious diseases from one state to another, and the act of 1893 granting additional quarantine powers and imposing additional duties upon the Marine Hospital Service.

"This was the state of development when I was assigned to duty in the Bureau of the Marine Hospital Service during the period of 1900–1903. In 1901 I had the honor of assisting former Surgeon-General Wyman in the preparation of a bill changing the name of the Marine Hospital Service to the United States Health Service. After many months of anxious work we had the great pleasure of seeing this bill enacted into law but owing to internal service consideration the name was changed to United States Public Health and Marine Hospital Service. Congress continued to expand the public health function of the service. In 1912 under Surgeon-

General Blue's direction, I had the honor of again being of some assistance in obtaining the passage of the act which changed the name of the service to the United States Public Health Service and provided broad investigative authority for the service.

"From the above outline of the development of the Public Health Service it is clear that Congress intended to make of it the principal Federal health agency. Congress, however, has authorized other departments and bureaus to perform certain health functions. The principal ones among these are the Bureau of Chemistry, Department of Agriculture; the Children's Bureau and Bureau of Labor Statistics, Department of Labor; Bureau of the Census, Division of Vital Statistics, Department of Commerce; the Bureau of Mines and Bureau of Education, Department of Interior; and the Interdepartmental Social Hygiene Board.

"There has been considerable criticism of the scattering of health agencies in so many of the executive departments, even by Congress itself. In fact, the Congress has directed a report to be made of the health activities performed by all departments.

Coördination of Federal Health Activities.

"A review of the laws relating to Federal health activities will show that the Public Health Service has all of the authority to investigate the disease of man and to control infectious and contagious diseases which, under the Constitution, can be conferred by Congress upon any Federal agency whatsoever. The only limitations are constitutional, the appropriations, and the supply of men and women trained in preventive medicine.

"Up to the present Congress has appropriated to the Public Health Service for the fiscal year ending June 30, 1920, $8,338,470, of which about $3,000,000 is for public health work. In addition it has imposed upon the service the duty of providing medical care for the discharged soldiers and sailors and authorized the acquisition of a number of additional hospitals. This will furnish wonderful opportunities for developing better methods of treatment and prevention of disease, especially tuberculous and neuro-psychiatric diseases.

"The review of the laws relating to Federal health activities will further show, as stated above, that several bureaus and divisions in several executive departments have been authorized by Congress to perform limited health functions in certain specific fields, for example: The Bureau of Chemistry, in so far as the pure food and drug act relates to public health; the Children's Bureau, in so far as child welfare relates to health; the Bureau of Labor Statistics, certain health functions in the matter of industrial diseases; the Bureau of Mines, in matters of health hazards in the mining industry; the Division of Vital Statistics, Census Bureau, in the matters relating to vital statistics; and the Interdepartmental Social Hygiene Board in matters relating to the control of venereal diseases. All of these functions are also authorized for the Public Health Service with overlapping in functions of those bureaus and divisions. There is also overlapping in the special fields of other bureaus, for example: The health of the child is often intimately related to industrial hygiene and to health hazards of the mining industry; the Division of Vital Statistics overlaps all bureaus in so far as it is authorized to collect vital statistics which relates to the work of the other bureaus.

"The confusion of effort and duplication of work is not yet serious, for the bureaus are limited in their functions by their appropriations so that as yet they seldom cover the same field. Furthermore, they often coöperate with one another by agreement or detail of officers from one bureau to another. As an illustration, the Public Health Service has detailed officers to coöperate with the Bureau of Chemistry, Bureau of Labor Statistics, Children's Bureau, Working Conditions Service, War Risk Insurance Bureau, Employees' Compensation Commission, Commission on Industrial Relations, Federal Board for Vocational Education, and others.

"It can readily be seen that if each bureau was provided with adequate appropriations their expansion would result in competition, jealousies and duplication of work with probable waste of government funds.

"The logical conclusion reached when one studies this question is to bring these several bureaus together and coördinate them under one administrative head. Obviously the several phases of public health work are so intimately related that they cannot work to the best advantage in different departments. Infant hygiene fades imperceptibly into school hygiene; school hygiene into hygiene of the child in industry. Public health is not a problem of separate age groups, racial groups or occupation groups.

"Without question one administrative head should have supervision over all of the civil Federal health activities. The necessity for this was shown during the war and an executive order was issued July 1, 1918, placing civil health activities under the supervision and control of the Secretary of the Treasury, through the Public Health Service (except those exercised by the Bureau of Labor Statistics).

Department of Health.

"If all health activities are to be coördinated under one administrative head, the creation of a department of health with a cabinet officer in

charge, together with a transfer to it of all bureaus or parts of bureaus and divisions of the government now engaged in such activities, is very generally considered the ideal method.

"Whether or not this is practicable at this time is a serious question. It is probable that both great parties will include such a policy in their platform in the next presidential campaign; if so, the chances for a department of health will be brighter than at present.

"In the creation of a department of health all of the bureaus or parts of bureaus and divisions and boards could be easily adjusted without any of them losing prestige. Some functions could be consolidated into single bureaus, others coördinated in existing bureaus or newly created bureaus. The plan should be constructive of the agencies we now have and certainly not destructive.

"The Public Health Service, owing to its size and present organization, would constitute the main foundation upon which to construct such a department. Its mobile corps of medical and sanitary personnel is an excellent one to expand so as to include in the commissioned corps all of the scientists and specialists transferred from the other departments in grades according to the nature of the work and experience of each. Furthermore, some provision should be made to commission high class specialists in the various branches of preventive medicine from civil life in grades commensurate with their ability and experience.

"The mobile corps as expanded should continue under the supervision of the surgeon-general and should perform all of the medical and sanitary duties for all of the bureaus and divisions of the department.

"The mobile corps should be composed of grades corresponding to the rank of surgeon-general, deputy surgeons-general-at-large, assistant surgeons-general-at-large, senior surgeons, surgeons, passed assistant surgeons and assistant surgeons; the number in each grade depending upon the needs of the departments. The tenure of office of members of the mobile corps should be the same as that of the present commissioned medical officers of the Public Health Service, and they should be entitled to the same pay, commutation and allowances as those officers. After the emergency needs of the present health requirements of the country are met, the appointments in the mobile corps should be made only to the lowest grade as are now the requirements in the commissioned medical corps of the Public Health Service.

"The provisions for one well organized disciplined mobile corps of highly trained health experts to perform all of the medical and sanitary duties for all of the bureaus and divisions will doubtless be an effective agency in coördinating the work of those bureaus. The free transfer of the personnel of the corps from duty in one bureau to that of another would make for unity of development and keep them in greater harmony. The mobile corps would be a large one but not so large and so subdivided into special branches as to prevent the development of a corps spirit which would present a united front for the work of the whole department. Without such a mobile corps each bureau would tend to develop separate scientific corps and instead of working in harmony there would spring up jealousies and competition with more or less waste of effort and duplication of work.

"In the organization of the department there should be a secretary and an assistant secretary with the usual office personnel and accounting division. Under the general supervision of the secretary and assistant secretary there should be the executive office in charge of the surgeon-general and in this office there should be three divisions as follows: (1) Personnel, (2) States Relations, and (3) Scientific Research. Each division should be in charge of a deputy surgeon-general. Under the general supervision of the executive officer there should be twelve bureaus as follows:

1. Mental Hygiene.
2. Child and School Hygiene.
3. Rural Hygiene.
4. Industrial Hygiene.
5. Foods and Drugs.
6. Public Health Information.
7. Sanitary Engineering.
8. Venereal Disease.
9. Tuberculosis.
10. Quarantine and Immigration.
11. Hospitals and Relief.
12. Vital Statistics and Epidemiology.

"Their names indicate their functions. Each bureau should be in charge of an assistant surgeon-general. The secretary and assistant secretary should be appointed by the President by and with the advice and consent of the Senate in the same manner as other cabinet officers and assistants. The surgeon-general, deputy surgeons-general, and assistant surgeons-general should be appointed from the mobile corps for a limited term under such tenure of office as will be in the best interest of the government.

"Upon the completion of duty in charge of the executive office, divisions or bureaus, officers should be returned to the mobile corps in such grades as may be considered best. It is believed that this method of organization will tend to further unify the work of the department and promote efficiency in the scientific administrative heads.

"I believe this plan of organization of the depart-

mental administration and the provision for a mobile corps will be better calculated to coördinate the Federal health activities than previous proposals to organize the department in independent bureaus and demobilize the present medical and sanitary corps of the Public Health Service. I cannot believe any plan should be proposed which did not utilize existing agencies to the best advantage.

DIVISION OF HEALTH IN AN EXISTING DEPARTMENT.

"If it is not practicable to obtain the ideal and create a department of health, I believe it would be practicable to transfer existing Federal health agencies to some existing executive department under an assistant secretary for health and provide the same mobile corps and the same organization of executive office, divisions, and bureaus as have been described above for a department of health. The coördination which is so desirable in the future development of Federal health activities might be accomplished as well in such a division of health as in a department. The prestige of such a division would probably not be so great as a department of health but it would be a great step forward and later if the development warranted it the division could readily be converted into a separate department.

HEALTH ADMINISTRATION.

"The transfer of all Federal health activities from the executive departments and the creation of an independent organization to be known as "A Health Administration" without cabinet representation, I do not believe is at all desirable. Without representation in the cabinet development will be slow and unsatisfactory. At least the experience of such independent agencies has not up to the present been such as to offer much encouragement in this field. Such independent administrations operated during the war with considerable success, backed by the patriotic coöperation of all the people, but could a health administrator expect an order for a health Sunday to be as effective as the orders for gasless Sundays and meatless and wheatless days were during the war? The reversion of feeling is too great to base an argument for a health administration on the operation of the Food and Fuel Administrations during the war.

EXPANSION OF FEDERAL HEALTH ACTIVITIES.

"In the discussion of the subject of the expansion of Federal health activities I can do no better than quote from a speech made by the majority leader of the House of Representatives, Mr. Mondell, on the subject of Federal aid extension plan for the rehabilitation of industrial cripples, he said:

" 'So far as these duties and responsibilities are to be met and performed through governmental agencies the primary responsibility is, of course, on the local and state governments. They are to a considerable extent responsible for the conditions which surround the citizen in his employment. They are on the ground and familiar with the conditions and armed with authority to deal directly with the situation.

" 'All this being true, it is natural that it be urged that as the responsibility is primarily that of the state and local community, as they are best qualified for the undertaking and their citizens are those most directly interested they should assume and perform a duty and responsibility so clearly theirs.

" 'These arguments have much force with those who realize the importance of confining the activities of the Federal government within proper bounds, and the even greater importance of insisting that the states and their communities shall, for their own good and that of the people generally, continue to assume and exercise their local duties and responsibilities.

" 'There is, however, a growing sentiment in favor of national leadership, stimulus, and direction in various lines in which the primary responsibility is local and in which the states and communities must wield the laboring oar, and that sentiment has been strongly expressed in behalf of legislation such as that now before us. Without minimizing state and local responsibilities for the rehabilitation and the restoration to lives of usefulness of those who suffer the accident of industry, humanitarians, welfare workers, labor leaders, captains of industry, and forward-looking folks of all classes have urged that the Federal government assume a position of leadership and guidance in this work of practical humanitarian endeavor.

" 'The bill provides not only for Federal encouragement and direction in coöperation with the states in the work of preparing those injured in industry for lives of further usefulness, but it also provides for Federal contributions towards this cooperative work. These contributions will, of course, encourage the states and the communities in the performance of their duty in this regard, but more important than any cash contribution is the fact that the national government recognizes the importance of saving industrial cripples from lives of dispair and dependence; of placing them in the way of self-help; restoring them to a condition enabling them to do their useful part in the world's work.'

. . .

" 'No man who ever occupied a seat in this House has spoken more frequently or more earnestly than I against undue and improper extension of Federal authority, jurisdiction and control. But, gentlemen, I have learned something in the more

than twenty years of my service here, and I trust I have grown with the growth of the sentiment of the country in favor of progressive legislation. I trust that I can see things in the light of today rather than from the viewpoint of the past.'*

"Later on in the discussion Mr. Mondell invited attention to the agriculture appropriation which contained among other items the following:

Inspection and cure of scabies in sheep	$525,000
Control of tuberculosis in domestic animals	1,500,000
Control of hog cholera	500,000
Control of Texas cattle tick	750,000
Total	$3,275,000

"In closing he said: 'Verily, I do not understand the philosophy of the gentlemen who insist we may properly do for swine what we may not do for humanity.'†

"The Lever Rural Health Bill as presented to the 65th Congress is an example of the policy advocated by the Public Health Service in efforts to carry out its program of desirable health activities. On December 3, 1918, the Public Health Service presented to Congress a program for the "Conservation of Public Health," which sets forth in outline what the service believes to be necessary to meet the urgent national needs and which will yield the maximum results in protecting national health and diminish the annual death toll taken by preventable disease. Time will not permit the reading of this program of the service for the expansion of Federal health activities but you are referred to Document No. 1539 of the 65th Congress, 3rd session, in which this program is published. The program is the goal for which the Public Health Service is aiming and it is hoped that all interested in public health development will aid the service in reaching its objective. We do not have to wait for the transfer of Federal health agencies into one department for this; all that the service needs is men and money.

"As stated before the Public Health Service already has all of the authority for the investigation of the diseases of man and for the control of contagious and infectious diseases, which under the Constitution can be conferred by Congress. The greatest limitation is the amount of appropriation. Adequate expansion of the service is only limited by the lack of money and men. Then why not all unite first to obtain health appropriations and when that is accomplished, I believe the coördination of existing agencies will be much more easily accomplished. If all health workers would get together and coördinate their effort in backing up existing agencies much more could be accomplished than by waiting for an ideal organization. Why wait? Use the means we have and results will come in large measures.

"On the other hand even should we obtain a department of health or an assistant secretary for health with the transfers, we still would be confronted with the same necessity for appropriations and the personnel problem will be just as difficult to solve as now. The greatest needs in Federal health activities are money and men.

"In addition to the expansion of Federal health activities along the lines of extending Federal aid to state and local health agencies, the Federal government has at least two definite responsibilities: (1) International control of disease, and (2) Interstate control of disease.

"For the international control it operates the maritime quarantine, and supplements this by the work of its consular service and the detail of public health officers to the places which are likely to become a menace. For the interstate control of disease, the Federal government under several acts of Congress undertakes certain measures, mainly through coöperation with state and local health authorities, and uses the Public Health Service for this purpose. In the past, the Public Health Service has largely confined itself to measures of control after the disease needing control had gained a foothold in a state and become a menace to other states. Under more modern methods, however, it has realized that its activities should be aimed at these diseases long before they become a menace. As an example of the latter methods, the service is enlarging the system of control of water supplies furnished to the traveling public by interstate common carriers. This control was first inaugurated January 25, 1913.

"State and local health agencies have a vital interest in the inter-state control of disease as well as the intra-state and intra-community control.

"With such closely related responsibilities, why not form a joint partnership and work together for the one service—prevention of disease? For example a case of typhoid fever in a remote rural district is a matter of joint interest to the county, state and Federal health authorities. The typhoid germ does not recognize the county or state lines. It may find its way into intra- and inter-state traffic and cause the loss of many human lives and the expenditures of large sums of state and Federal funds. The rational procedure would be to form the partnership and prevent or control all preventable diseases at their source.

"Such partnership would coördinate the work of

* Congressional Record, October 11, 1919, p. 7134.
† Congressional Record, October 14, 1919, p. 7275.

Federal, state and local health agencies. I am sure all of us recognize the fact that there is just as urgent a necessity for this as there is for coördinating Federal health activities.

"In the development of such a partnership we should not lose sight of the American principle of local self-government. The local health unit should therefore be organized on this principle by each locality, but the state and Federal governments should bear a just proportion of the cost and exercise such supervision as will insure efficient service.

"With proper coördination between Federal, state and local health activities, with adequate expansion of the interstate operation of the Public Health Service and with the Federal aid extension plan, a synchronous attack can be made in all states for the control of disease.

"Such unity of action will bring results and public health workers will reach many of the objectives for which they have fought for many years. Without unity of action and with internal dissensions we will make little progress and the hope of reaching our objectives will fade."

In taking up the discussion of Dr. Rankin's paper Dr. W. S. Small of the United States Bureau of Education, Washington, D. C., spoke as follows:

"I wish first of all to correct certain errors which seem to be in the atmosphere. Dr. Rankin in his paper stated that a bill had been introduced, or is under consideration, by which the Bureau of Education, the Department of the Interior, is seeking also to gain entrance to the public health field. (A similar statement was made by Dr. Frankel in his presidential address.) The statement is erroneous." He then continued stating that he was not certain about what bill Dr. Rankin refers to.

"I do not know what bill he has reference to. It may be he has reference to the so-called Smith-Towner Educational Bill for the creation of a Department of Education, and the payment of Federal funds to the states for the promotion of certain educational objects. Among the objects specified is physical education, including instruction in the principles of health and sanitation and the provision of school nurses, dental clinics, and otherwise promoting physical and mental welfare.

"This bill is the child of the National Education Association. It is fairly obvious that the Department of the Interior is not sponsoring a bill for the creation of a new department.

"It may be that Dr. Rankin had reference to the preliminary draft of a Federal bill for the promotion of physical education. The committee that prepared this preliminary draft included a representative of the Public Health Service, of the Bureau of Education, and a third member—the New York state supervisor of physical education. That bill has not yet been introduced. If he had reference to that bill, let me say he has misunderstood its purport and significance.

"Let me illustrate: At the present time in the state of North Carolina, the State Department of Health reaches over, very properly, I think, into the State Department of Education and takes $75,000 of school funds and applies the same to school medical inspection. Under the tentative bill, as drawn, the same procedure might be continued in the state of North Carolina. It would be for the legislative body of the state of North Carolina to determine, so far as I can see. This is true also for the Smith-Towner Bill.

"I wish to call your attention to this fact: North Carolina and the two or three other states that designate the State Department of Health to administer school health work are only a few of the great number of states that have enacted legislation for what is variously called school hygiene, medical inspection and school health supervision; and that the great majority of these designate the school authority as the responsible authority for administering those acts.

"I am not arguing here that the administration of what is technically known as school medical inspection, and what is less accurately designated as school hygiene, is the prerogative of either the public education authority or the public health authority—that either the one or the other is the sole body to administer such acts. I am simply pointing out that there is wide diversity of practice. I might point out that in foreign countries there is considerable diversity of practice. In France, England, Switzerland and other continental countries, before the war—and I do not think the legislation has been changed—school hygiene was exclusively the responsibility of the school authorities. Dr. McLaughlin told me a while ago this was about to be changed in England. I know there has been a department of health created, but whether the administration of school medical inspection has been transferred to it I am not prepared to say.

"The only point I am making is this: That there is wide diversity of practice; that the point of view is different in different places, and that we need to go slow in assuming that we have settled theoretically, as we know we have not practically, the administrative question.

"There is a type of man who can figure out on paper what he thinks is the logic of the situation. He is generally a fellow somewhat obsessed with words, who thinks in terms of words, who can lay out the plan with absolute certainty. But I want

to call your attention to the fact that this is a big country. It would be a dangerous thing to say that what is good practice in North Carolina is necessarily the best practice in Utah; that what is the best practice in New York is necessarily so in Texas. At any rate, Utah and Texas do not seem to think so. It does not follow that what is the best practice in Boston is necessarily the best practice in the city of New York. It is perfectly easy for this man to be quite sure he is absolutely right, but it is quite a different thing to put it over.

"The public health interest is not peculiar with respect to the "fifty-seven varieties" in the governmental departments. Dr. Rankin and Dr. Warren pointed out that public health work is being done in a number of governmental departments. I could point out to you that the day war was declared there were twenty-two different governmental agencies in Washington carrying on educational activities. During the war the number was increased. I want to say that the matter of focalizing and coördinating governmental activities, in respect to public education, is quite as vital and difficult as that of focalizing and coördinating the activities relating to public health.

"I am in entire sympathy with this movement for coördinating public health work. I took a very humble part some eight or ten years ago in the movement for a department of health. I am in entire sympathy with the recommendation of Dr. Rankin that there shall be a thorough-going survey of the governmental activities in regard to public health. Just as I hope that in connection with the Smith-Towner Bill there will be a thorough survey with respect to education. This is the thing I want to say. We should not be pulling two ways and be more concerned about our institutional ambitions than about the health and education of the American people. There are some people in both camps who are more interested in exploiting the American people in the interest of their institution than they are in building up the American people. That is human nature, but we must purge our souls of that sort of thing if we are going to get ahead. We must stop sitting in our swivel chairs crying out, 'This is mine,' and fighting about it.

"The point I want to emphasize is, that there is a twilight zone between public education and public health. The thing we want to do is to survey that zone and see where there is interpenetration and overlapping. Overlapping can and should be done away with; interpenetration cannot, and ought not to be done away with. You must have coöperation there and not try to draw a geometrical line where it cannot exist in life.

"I attended a meeting recently at which an able and cultivated woman was trying to say many important things in a few minutes. Ideas were outrunning words. Public health, child welfare and other matters were swiftly summoned and dismissed. In her attempt to say something about child welfare and health the word 'health' was somehow telescoped, and what she said was, 'What we are trying to do is to promote child helfare.'

"That is just what we are going to do if we do not get over the idea that we, individually and institutionally, know everything and have all the responsibility, and the other side of the fence has not anything. The child is an organism. We are likely to tear him apart in our efforts to build him up.

"There may be some here who are familiar with a certain oriental story of ancient times. The story runs that two women came before a wise judge with a child, each claiming to be the mother of the child. The judge, being a very wise man, called for a scimetar and said, 'I will split this child down the middle; you take one half and the other woman the other.' Then one of the woman cried out: 'Oh, no, give him to my rival!' But the wise judge said: 'Nay, take the child; he is thine.'

"Friends, I do not know whether we are going before a wise judge with a curving sword, but I do know we are going to be judged according to our works. There is a very great danger that in our efforts to serve our own particular god whom we worship truly and honestly, the bones of the child may be broken by pulling him asunder or that he may be left to perish while the institutional rivals fight their battles in the good old way.

"What I plead for is mutual understanding and mutual coöperation."

In the discussion of Dr. Rankin's paper, Dr. Anna E. Rude of the Children's Bureau, Washington, spoke in defense of the health work undertaken by the bureau which she set forth as a minor part of the bureau's work. The act creating the bureau outlined its duties to be the investigation and report of all conditions among all classes of children. Of course, any well-rounded-out child welfare problem must include the health problems of the child. As an example of a voluntary effort at coöperation among the various Federal bureaus, Dr. Rude outlined the bill which the bureau is fostering, known as the bill for the Protection of Maternity and Infancy. Such a bill was before Congress last year, and the American Public Health Association had opposed it because it created in each state a separate board to be known as the Maternity and Infancy Hygiene Board. Dr. Rude explained, in relation to its failure to pass last year, that it did not fail to pass the committee hearing, but it was too

late in the session for Congress to act upon it. It has been redrafted to meet the objections made last year. It has been recently introduced by a southern senator who spontaneously selected it from the many bills left over and introduced it with some modifications. Since then, it has been further modified.

This bill provides for a central governing board to be composed of the Commissioner of Education and the Surgeon General of the United States Public Health Service, the Secretary of Labor, and the Chief of the Children's Bureau, thus representing three Federal departments. The bill provides for $10,000 annually to be given outright to each state, the precedent for which is to be found in the Vocational Educational Bill. Aside from this, there will be an additional appropriation based on the state population which must be met by a similar appropriation from the state. The Federal Board of Maternity and Infancy must approve the state's plans before the appropriation will be given. The objection of last year that the bill did not administer through existing state boards of health has been removed, so that as it now reads, it may be administered through a state board having a Division of Child Hygiene. There are thirty states having such divisions, against eleven such states a year ago. For states not having such divisions, a Maternity and Infancy Board may be appointed by the governor. Miss Rude called attention to the fact that states which at the present time have no state divisions of hygiene would not lose time in organizing them. Such an appropriation would be welcomed by any state.

The Children's Bureau has limited most of its public health efforts to investigations dealing with the health conditions of mothers and young children of school age, and to the stimulation of public education in these matters. The present bill is being supported with the belief that it will be an effective means for securing rapid advance in this work, and be helpful in furthering better health conditions for mothers and children.

REPORTS OF COMMITTEES.

Report of the Committee to Coöperate with the Representative of the Carnegie Foundation Now Engaged in the Study of the Health of the Foreign Born.

The committee was appointed July 14, 1919, and presented this report at the meeting of the American Public Health Association at New Orleans, October 27–30, 1919. Those present were Dr. Michael Davis, representing the Carnegie Foundation, and Doctors Francis E. Fronczak, W. H. Brown and H. T. Vaughan, representing the American Public Health Association.

The discussion of the question of public health among the foreign born first resolved itself into a question of what language should be used in the literature distributed for educational purposes by the various health departments. It was thought that the use of compulsion, that is, the exerting of undue pressure upon the foreign born to read English, would act as a barrier and create opposition to any attempt to force the use of the English language. Furthermore, the primary principle involved in the publication of such literature is to get the individual message to the people as soon as possible and in such a manner that they cannot fail to comprehend the purpose. Although the use of parallel columns, by which means English would be employed together with the corresponding foreign translations, might be encouraged, especially in connection with the more "chronic" public health problems, such as tuberculosis and infant welfare, still it seemed that very little attention would be paid by the average foreigner to the English translation. In the case of "acute" problems, such as the control of influenza, diphtheria, scarlet fever, etc., it was the more general concensus of opinion that there would be little accomplished by using any language other than the one to which the individual was accustomed.

Dr. Davis suggested the utilization of practical hygiene and public health material in the public schools to take the place of the uninteresting material generally used by such schools in teaching English. Dr. Brown suggested the use of such public health material in the Americanization work which is being done by most cities among the employees of factories and general industries. Dr. Davis was of the opinion that there is a general tendency among the foreign born to attempt to protect and extend the use of their own native language, this doubtless resulting from some racial or religious instinct of the individual.

Dr. Fronczak reported that this tendency has generally ceased to exist in some nationalities, especially Polanders, since the close of the European war. This obviously is the result of a change of political attitude.

A concrete example of the employment of compulsion in attempting to Americanize the foreign born may be shown in the handling of the midwife situation. Most of our leading industrial cities of the country still have a very large percentage—from thirty to fifty—of their births attended by midwives. With the gradual education of the midwife and of the people themselves and by the elimination of the more undesirable type, the per cent of

births attended by midwives has greatly decreased in some cities within the last six or eight years. Should, however, an attempt be made to compel the employment of the male physician at child birth, it is believed that such compulsion would merely antagonize the foreign born and would encourage the use of deceit, not only among the mothers themselves, but also among a group of doctors who would be quite willing to shield the midwife who might be practicing without a license. The entire attitude would be antagonistic and would do much to retard the progress of Americanization.

The proper employment of the individual's native language might serve to make the people appreciate that the American plan of doing things is better than their own. This must be done in such a way that the individual will gradually and unconsciously feel that there is a better method than that to which he has been accustomed.

Dr. Fronczak moved and it was voted that it be the opinion of this committee that health departments throughout the country should use for their literature the language which the people themselves are accustomed to use.

The question was discussed as to whether there is a distinct public health problem for the foreign born. Dr. Davis reported statistics showing that, in general, the infant mortality rate is higher among the foreign born than among the American born. This certainly has been the general experience of all cities in which the foreign born element forms a large portion of the total population. The pneumonia death rate among Italians in New York City was shown to be five or six times as great as that for a group of Jewish people of the same age group, both classes apparently living under the same home conditions. The importance of statistics as to nativity was emphasized. In general, the results of the investigation of the Committee on Americanization of the Carnegie Foundation showed that there was great variation between the morbidity and mortality rates for the American born and the foreign born, and their studies seem to warrant further investigation.

The question of handling midwives was discussed, and it was the general concensus of opinion that they could not be eradicated within the next twenty years. They should be recognized as such and then regulated. Dr. Fronczak moved and it was voted that it was the opinion of this committee that states with a large foreign population should take cognizance of the existence of midwives and should supervise their methods, care of equipment, etc.

Venereal and child welfare problems seem to be largely questions of the employment of a suitable language, which, in the opinion of the committee, should be the language of the individual himself. Likewise the success or failure of lectures and exhibits depends largely upon the employment of a proper language.

In the discussion of hospitalization of the foreign born, the point was brought out that this class look upon the problem of hospital care in a different way from the American born. This may be due somewhat to superstition and racial or religious scruples, but it was the opinion of the committee that the main factor at fault was that the individual on admission to a hospital would find himself among people talking a different language than his own and doing things in a way which he could not readily comprehend. It was therefore suggested that in cities with a large foreign population certain hospitals, to which the taking of foreign born patients should be encouraged, should have at least one or two nurses who could speak foreign languages. The psychic effect upon the patient can well be appreciated.

The question of the elimination of quack doctors and the doing away with fake advertisements in the foreign papers was discussed. These questions primarily involve education. It was suggested that quack advertisements might be replaced by those written by the local health department in advertising its own clinics, etc.

Dr. Davis suggested three important items in the program of public health work among the foreign, namely: (1) Localization; that is, clinics or health centers, or branch administrative offices in neighborhoods which are close to the people, this being especially important in preventive and educational work; (2) education of nurses, social workers and doctors in the backgrounds, traditions, custom[illegible]nd to some extent, in the language of the foreign born; (3) coöperation of the people themselves, secured wherever possible, through individuals or through organizations, which are generally found existing among the foreign born.

Dr. Brown moved and it was voted that the nature of the problem which has been referred to this temporary committee is of such importance as to warrant the appointment of a permanent committee, whose duty it should be to study health problems among the foreign born, such committee to make further studies and to stimulate general interest in this important subject.

HENRY F. VAUGHAN, M. D., *Chairman*.
WALTER H. BROWN, M. D.
FRANCIS E. FRONCZAK, M. D.

PROGRESS REPORT OF THE INFLUENZA COMMITTEE.

Those members of the emergency Influenza Committee, appointed at Chicago and in attendance at the New Orleans meeting, submit the following conclusions as the report of this committee for the present year:

1. It is the opinion of the committee that there will be recurrences of influenza during the coming winter, milder in character and extent than the epidemic of last year.

The history of the disease is characterized by wave-like recurrences; if it is granted that we are dealing with the same disease, previous influenza periods have demonstrated that a certain percentage of the population is susceptible, and the epidemic of 1918–19 probably left a relatively small proportion of this percentage untouched by the disease. Further, the deaths in the recent epidemic exceeded the influenza mortality during any previous four-year period in recent times when influenza was in excess of normal.

2. The committee urges upon health officials the continued energetic use of the best known methods for fighting an acute respiratory epidemic disease in handling further influenza outbreaks, in spite of a lack of eivdence of the complete efficacy of any or all of the measures recommended.

Certain measures are effective in controlling the spread of scarlet fever and diphtheria, for instance. These same measures are less effective in the control of measles, and evidently less effective in the control of influenza. Yet we are not justified in abandoning the program of defense against any of these diseases, simply because it varies in utility in different infections. Further, against the milder manifestations of influenza to be expected this year, it is probable that ordinary defensive measures will be relatively more successful.

3. The committee believes that the element of individual immunity offers the greatest promise for the future delimitation and control of influenza. It appears that the recent epidemic was limited primarily by an exhaustion of susceptible human material, although special hygienic and suppressive measures may have been in part effective in particular instances. The prognosis as to recurrences of a character less severe in extent and virulency is based essentially on the assumption that the epidemic of 1918–1919 reached most of the susceptible individuals, and probably produced in the great majority of those affected a relative, though perhaps temporary, degree of immunity.

For these reasons it would seem that efforts to discover the infective agent, and to produce a means for artificial immunization are justified.

4. Finally, the committee advocates that every opportunity be taken to study and follow up the epidemic, by laboratory investigations, by statistical research, and by the promotion of medical examination work for the detection of influenza sequellae.

Investigations in the last mentioned field carried out thus far indicate a slight increase if any in tuberculosis following the epidemic, and no marked increase in other defects such as cardiac, renal, nerve or other lesions.

A special progress report is being submitted to the Association by the Subcommittee on Statistics.

Respectfully submitted,

W. A. Evans, *Chairman*,
G. W. McCoy,
Henry Albert,
Wm. H. Davis,
D. B. Armstrong.
Committee on Influenza.

MEETINGS OF THE BOARD OF DIRECTORS

Seventeen members of the Board of Directors of the A. P. H. A. were present at New Orleans, there being two meetings of the Board, one on October 26 and the other on October 29. At the first of these the following reports and items of business were considered:

The president and secretary pointed out that during the past year the membership had been increased 113 per cent, the subscriptions to the Journal, 61 per cent, and the Association income, 53 per cent. The total circulation of the Journal is at present 4,458, of which 3,412 is composed of Association memberships.

Dr. Evans presented a committee report on state health societies, urging that the work of organizing such societies be vigorously pushed during the next year. Petitions for affiliation of the state health societies in the following states were accepted: Kansas, Montana and Michigan.

Dr. Frankel reported signs of interest in the popular health magazine on the part of a philanthropic fund. He was appointed a committee of one to continue negotiations for the purpose of financing the magazine.

The question of discontinuing the $1 associate membership was discussed, because of the tendency of some professional sanitarians to become associate members at $1, instead of active members at $5. It was voted to hold the matter over for consideration at a later meeting, meanwhile making every effort to induce those who had a professional interest in public health to become active members.

It was voted to permit those petitioning for sec-

tions in military hygiene, child hygiene, and personal hygiene to conduct future meetings, with a view to demonstrating the demand for sections before authorizing the establishment thereof.

Dr. Vaughan read a report dealing with the Americanization of the foreign born, and it was concluded to receive the report and continue the committee.

Professor Turner, of Massachusetts Institute of Technology, pointed out to the directors that twelve different kinds of public health degrees are offered in the United States and Canada, and urged that public health courses and public health degrees be standardized as has already been done in the case of medical degrees. It was voted to appoint a committee of health educators and administrators to take up this work. An independent committee of health educators, already existing, including Professor Winslow, Professor Sedgwick, Dr. Welch, and others, is to be invited to form part of the A. P. H. A. committee.

The Board of Directors sanctioned the issue of a public health year book provided it became apparent that this would be a financial success.

The secretary pointed out that the public health encyclopædia proposed by Dr. Goldwater would have to be subsidized if published, and it was voted to appoint a committee to take the matter up further with Dr. Goldwater.

At the second meeting the officers of the Association for the coming year were elected. Their names appear on the first white page of the Advertising Section of this issue of the JOURNAL.

San Francisco was chosen for the next meeting place. Cleveland, Ohio, and Seattle, were contestants. The decision to go to San Francisco was reached only after serious consideration. It was pointed out by several that the Association had never been to the Pacific Coast and that a meeting there would be a great stimulus to a public health movement which has already made marked progress. The Westerners have long felt neglected, pointing out that they have loyally attended one meeting after another in the Mississippi Valley and in the East, and that the Association now owes it to the West to hold a meeting there. Dr. W. H. Kellogg, who spoke for San Francisco, pledged California to meet all of the requirements for a successful meeting by way of providing funds and coöperation of local committees.

A committee was authorized to discuss with child hygiene associations the question of forming a child hygiene section in the A. P. H. A. (Both the child hygiene meetings were highly successful, the attendance reaching as high as 200.)

Conferences were arranged with the American Association of Medical Milk Commissions which had manifested interest in affiliating with the A. P. H. A., and it was voted that a committee be appointed to draw up necessary changes in the constitution to promote the affiliation of such national health organizations with the A. P. H. A.

Dr. Small spoke in favor of a bill to promote national physical education. The Association had by resolution already approved of the principle of physical education.

ASSOCIATION NEWS

HEALTH EMPLOYMENT BUREAU.

Help-wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the fifteenth of each month. In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Competent man for position of second assistant sanitary engineer of state board of health. Usual duties, especially inspection of operation of water works, water purification, and sewage disposal. Salary, $1,800, with two weeks' vacation. Address H. A. C. 312, care of this JOURNAL.

Epidemiologist, with or without experience. Apply, giving full information and references. Address H. E. B. 314, care of this JOURNAL.

Graduate Veterinarian wanted for food and dairy inspection work. Apply, with full particulars, to City Health Department, Winston-Salem, N. C.

The League of Red Cross Societies, now being organized, is to become virtually the Health Department of the League of Nations. The Division of Sanitation, of which Prof. George C. Whipple is director, with headquarters at Geneva, Switzerland, will have charge of these activities, which at first will cover the stricken parts of Europe, but will ultimately extend to South America, Africa and Asia. Professor Whipple and his associate director, Col. F. F. Longley, desire to obtain the names of a dozen or more sanitary engineers between the ages of 25 and 40 who are willing to engage in this work and who will be ready to answer an emergency call this winter in case the need should arise. Address Prof. George C. Whipple, Harvard University, Cambridge, Mass.

LIST OF NEW MEMBERS

PROPOSED FOR ELECTION TO THE

A. P. H. A.

FROM OCTOBER 19, TO NOVEMBER 21, 1919.

Sponsors	—and— (States arranged in alphabetical order)	The New Members Whom They Introduced
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H. W. GREEN, Lake Village, Ark.		E. H. CLARKSON, Jr., International Health Board, Lake Village, Ark.
PROF. CHARLES GILMAN HYDE, Berkeley, Cal.		MR. ANDREW MARTIN JENSEN, Civil Engineer, Fresno, Cal.
C. G. GILLESPIE, Berkeley, Cal.		
FRANK L. KELLY, M. D., Berkeley, Cal.		ROBERT THOMAS LEGGE, M. D., Professor of Hygiene, University of California, Berkeley, Cal.
PROF. W. T. SEDGWICK, Cambridge, Mass.		
R. W. NAUSS, M. D., Sacramento, Cal.		C. A. KOFOID, Ph. D., Professor of Zoology, University of California, Berkeley, Cal.
W. H. KELLOGG, M. D., San Francisco, Cal.		J. E. CHAPIN, M. D., Health Officer, Redwood, Cal.
		J. I. CLARK, M. D., City Health Officer, Santa Ana, Cal.
		ALLEN F. GILLIHAN, M. D., District Health Officer, State, California State Board of Health, Sacramento, Cal.
		S. H. RANTZ, M. D., Health Officer, Placerville, Cal.
		WILLIAM SIMPSON, M. D., County Health Officer, San José, Cal.
		WILLIAM A. TALTAVALL, M. D., Health Officer, Redlands, Cal.
		GAVIN J. TELFER, M. D., Health Officer, Los Angeles, Cal.
		ALLEN L. WINTER, M. D., Surgeon, U. S. P. H. S., Altadena, Cal.
SOL PINCUS, Washington, D. C.		G. A. CRYER, M. D., Anniston, Ala.
		MR. V. M. EHLERS, State Sanitary Engineer, Austin, Tex.
		MR. H. W. VAN HOVENBERG, Sanitary Engineer, Texarkana, Ark.
CHARLES J. HASTINGS, M. D., Toronto, Ont.		MR. JOHN A. COWAN, Toronto, Can.
		MR. WILL L. HUTTON, Brantford, Ont.
MISS OLIVE CHAPMAN, Denver, Col.		AGNES PAULSEN, R. N., Nurse, Minnequa Hospital, Pueblo, Col.
T. E. REEKS, M. D., New Britain, Conn.		J. C. BARKER, M. D., Health Officer, New Milford, Conn.
		W. B. BISSELL, M. D., Health Officer, Lakeville, Conn.
		MR. E. W. BULL, Health Officer, Kent, Conn.
		I. L. HAMANT, M. D., Health Officer, Norfolk, Conn.
		MR. I. P. HORNBECK, Health Officer, Falls Village, Conn.
		CHARLES W. JACKSON, M. D., Health Officer, Watertown, Conn.
		RICHARD J. LAWTON, M. D., Health Officer, Terryville, Conn.
		F. H. LEE, M. D., Health Officer, Canaan, Conn.
		M. C. McINTYRE, M. D., Health Officer, Roxbury, Conn.
GRACE WHITFORD, M. D., Azona, Fla.		MISS AGNES NEVA McKINNA, Welfare Worker, Jacksonville, Fla.
B. L. ARMS, M. D., Jacksonville, Fla.		DANIEL C. CAMPBELL, M. D., State Board of Health, Jacksonville, Fla.
		MR. M. F. HASBROUCK, New York City.
		MR. DWIGHT T. SCOTT, President National Vaccine and Antitoxin Institute, Washington, D. C.
J. P. KENNEDY, M. D., Atlanta, Ga.		MR. J. E. ACHER, City Hall, Atlanta, Ga.
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		GRACE H. CAMPBELL, M. D., Medical Inspector Certified Milk Commission, Chicago, Ill.
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MISS ANNA CONSTABLE MOORE, Assistant Bacteriologist, Albany, N. Y.
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HAROLD STEPHEN BUCKLIN, M. D., Brown University, Pawtucket, R. I.
MISS MARY S. GARDNER, Public Health Nurse, Providence, R. I.
EDGAR A. HINES, M. D., Seneca, S. C.
F. W. FREYBERG, M. D., Surgeon, Aberdeen, S. D.
EUGENE A. GILHERT, M. D., Assistant Director of School Inspection, Chattanooga, Tenn.
MR. J. A. LE PRINCE, Sanitary Engineer, Memphis, Tenn.
OLIN WEST, M. D., Secretary Tennessee State Board Health, Nashville, Tenn.
LUIS GREGORIO CHACIN ITRIAGO, M. D., Caracas, Venezuela.
MR. CHRIS R. FRASCH, Sanitary Officer, Seattle, Wash.
YANCEY, C. BLALOCK, M. D., Health Officer, Walla Walla, Wash.
H. S. BRODE, PH. D., Professor of Biology, Whitman College, Walla Walla, Wash.
MISS MARGARET THOMAS, Public Welfare Department, Barron, Wis.
CLARENCE J. KENNEY, M. D., Health Officer, Milwaukee, Wis.
C. Y. BEARD, M. D., Surgeon, 122 E. 27th St., Cheyenne, Wyo.

DEATH OF DR. BISSELL.

The Association has had the misfortune to lose by death an active, helpful member, W. G. Bissell, M.D., of Buffalo, N. Y. Dr. Bissell was in attendance at the New Orleans meeting and was there elected Vice-Chairman of the Laboratory Section of which he had previously been Secretary.

BOOKS AND REPORTS REVIEWED

Health Education in Rural Schools. *J. Mace Andress, Ph. D. Boston: Houghton Mifflin Company. 1919. Pp. 121+viii. Price, $1.60.*

The importance of health education and protection of school children is thoroughly established. It is recognized that the future health and vigor of the race depend on the proper care and instruction of the children today. The vast number of men rejected in the first draft because of physical defects would indicate that much can be done to recognize early physical defects, and to correct them while they are not very serious. Medical inspection and public health nursing among school children are spreading in our cities today, but the movement has hardly even obtained a foothold in the rural schools. Yet it is in these schools where health protection and education seem to be particularly necessary. The purpose of this book is to emphasize the subject of health protection and education of rural school children, and to place before the teacher in the rural schools, a text-book which may serve as a guide and stimulus in this part of her work.

There are many sanitary defects in the rural schools. The lighting is usually bad; the seats and desks are non-adjustable; the school buildings are poorly heated; the water is obtained from shallow wells and springs which are often polluted; the open bucket and common drinking cup are used; the doors and windows are seldom screened; and the toilet facilities are exceedingly bad. The rural schools are also deficient in medical inspection, dental clinics, eye, ear, nose and throat clinics, public health nurses, open air classes, and facilities for warm luncheons, athletics and recreation. Since provision is not made for these activities, it should, therefore, be the task of the teacher to attempt to remedy sanitary defects, and to recognize physical defects among the children. Much improvement can be obtained by enlisting the coöperation and interest of the parents and the community, through the parent-teacher associations and the other local organizations. In teaching the children habits pertaining to healthful living, it should be recognized that the instruction should be pleasant and interesting, and should if possible, be dramatized, in order to produce a lasting effect. Sometimes effective habits can be cultivated as a result of competition, or by offering marks, honors, or prizes. The children will also be willing to do many things out of love and respect for the teacher.

The book is well written and illustrated, and is simple and specific. In addition to the items already enumerated, it considers such questions as heating and ventilation, posture, common colds, the care of the teeth, eyes, ears, nose and throat, proper diet, play and physical education, and means for combating flies, mosquitoes, lice, rats and mice. The book will be found to be of particular value to the rural school teacher, who appreciates the important relationship of health to education, and who is anxious to do what she can to improve the health of the children, and the sanitation of the school.

Murray P. Horwood, M. S.

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Milk. *Paul G. Heineman, Ph. D., Director of the Laboratories of the United States Standard Serum Company, Woodworth, Wis. Philadelphia and London: W. B. Saunders Company. Pp. 684, illustrated. Price, $6.00 net.*

An excellently written and up-to-date book on the subject of milk. As can be seen by the headings of the chapters it will be found useful to the sanitarian, the physician, the laboratory worker, the producer, the economist and the student. The subjects covered are historical, the physiology of lactation, physical properties of milk, general chemistry of milk, physical and chemical examination of milk, adulteration of milk, enzyms of milk, transmission of toxins and antibodies by means of milk, germicidal action of fresh cow's milk, microörganisms in milk, kinds of microörganisms in milk, fermented milk, bacteriological examination of milk, milk borne infections, certified milk, pasteurization of milk and other methods of reducing the germ content, control of milk supplies, economic aspect of milk production, milk in its relation to infant feeding, butter, cheese, ice-cream and ices, condensed and desiccated milks and milks from mammals other than the cow.

It is to be regretted that the author of such an excellent book should not have taken advantage of the opportunity to correct the prevalent opinion held that cow's milk has a much higher acidity than human milk. The erroneous statements as to the differences in the acidity of the two milks has been due to a lack of knowledge of the chemistry of milks and more recent investigations have shown, that the acidity of cow's milk is about a third of that usually given in the text-books upon the subject,

and that the older methods for determining the acidity of milk are not reliable.

A. W. Bosworth.

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"Health Journal."—The Health Journal of the Massachusetts Tuberculosis League made its initial bow to the public with the October, 1919, issue. Its purpose, as announced, "is to enable the state league and its affiliated organizations to become acquainted and thus to profit from each other's experiences and good ideas." The first issue was given wide circulation in the state and sent to each state board of health and tuberculosis association in the country. Anyone interested may have his name placed upon the mailing list. The editorial staff has Robert V. Spencer for managing editor, and John B. Hawes, 2d, M. D., and Charles E. Bellatty, for associate editors. The magazine is published bi-monthly at 1149 Little Building, Boston, Mass. The first issue contains 16 pages, large quarto. It is attractive in appearance and is printed on good paper. Photographs and charts add to the interest of the short instructive articles.

(R. F. H.)

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Health Centers: A Field for Red Cross Activity. *Washington, D. C.: American Red Cross.*

The American Red Cross has recently issued a twenty-page pamphlet entitled "Health Centers: A Field for Red Cross Activity." This pamphlet is the preliminary and general statement of a part of the peace-time program of the Red Cross which is concerned with public health. It is the plan of the Red Cross to offer its services in assisting the establishment of health centers in those communities where they are needed. This important step has not been taken with a view to perpetuate the Red Cross, but because the promotion of better health is deemed a national necessity, and its neglect an annual national disaster.

The demand for team-play in public health is stressed, and the health center is offered as the next step in the evolution of community welfare. It differs from the dispensary or clinic in that the health center accords importance to the preventive aspect rather than the curative. The health center acts as a clearing house for public health information and offers opportunity to coördinate all the public and private activities which exist in a community. It is suggested that here should be housed the city health officer, his laboratory, and that space should be provided for various clinics such as infant welfare, tuberculosis, venereal disease, mental hygiene, dental hygiene and industrial hygiene, together with an auditorium which could serve for a meeting place for conferences and lectures and gatherings of local medical societies.

The pamphlet particularly makes the point that the Red Cross has no desire to limit or substitute for public health administration. On the contrary, it is stated that all health work should eventually be under the jurisdiction of the public authorities. The position of the Red Cross is simply to supplement existing agencies and to coöperate in public health work in general. As Dr. Farrand has said: "Without in the slightest degree grasping or usurping the field of any other organization we can get behind these bodies and insert a new kind of cement, a new kind of binding material, that will hold them together so that they will find that they are forming one great forward movement for the welfare of the country."

In outlining how to establish a health center, the pamphlet remarks that no hard and fast rule can be set down, as local conditions must be considered. It is recommended that the Red Cross may: first, initiate a movement for a health center which shall be supported in whole or in part by public funds as an official activity; second, take the lead in coördinating all or some of the sound and well-conducted volunteer agencies; or third, failing either alternative, it may itself construct and operate a health center.

The public health officer of the community, backed up if necessary by the district or headquarters representative of a state health department, should be expected and encouraged to take the lead in bringing together the various officers in planning and developing a health center. If for any reason this is not now practicable, the voluntary health agencies of the community may well take the initiative for the coördination of the health work in the manner suggested. Every legitimate group working in the interests of public health should be invited to participate.

PUBLIC HEALTH NOTES

Abstracts by D. Greenberg, M. P. Horwood and Mayo Tolman.

Botulism from Canned Asparagus.—On the occurrence of several cases of botulism following the eating of asparagus taken from jars and served cold as a salad, the authors have been able to isolate a strain of *B. botulinus*. A detailed description of the cultural, morphological, and pathogenic characteristics of this strain is given. The thermal death point of the organism was tested and it was noted that is optimum temperature was 37° C. Spores survive steaming under ten pounds pressure for fifteen minutes or a temperature of 100° C. for one hour. These results show that the organism is sufficiently resistant to account for its survival in canned food. The toxin, however, is destroyed at some point between 70° and 73° C. by heating for ten minutes.

As a result of a series of experiments with this organism, the authors' comment on the question of canned food is worthy of special note. Successful canning, so far as the danger from such strains as the Boise organism is involved, depends not so much on the method of work selected as on the rejection of infected material at the start. Dirty, wilted and partly rotted food, carries multitudes more of organisms into the canning process than fresh, sound, clean fruits and vegetables. Dirty tables, dirty jars and lids, sewage-polluted water and flies are sources of contamination which should be eliminated. The material should be processed according to the best experience available. Finally, it must be frankly recognized that an occasional jar, or series of jars may yet spoil because some factor escaped all these precautions. Such food should be destroyed, not salvaged, not mixed up in salads, mince meat or pie stock for human food. The toxin present may be destroyed by heating until jar, lid and rubber, as well as contents have actually reached the boiling point.

Typical spoiled cans are readily identified. Doubtful cases, however, occur frequently. A consumer unfamiliar with a particular product is frequently puzzled by its odor as it comes apparently sound from a can in good condition. Cooking, as recommended by Dickson, appears to be the practical method of destroying possible toxin in such materials; even this, however, leaves the spores viable. Feeding suspected food to domestic animals, without safeguards, is clearly undesirable. Unfortunately there are many people who undertake to salvage canned food which they know to be spoiled or in some stage of decomposition. The warning, therefore, is clearly, not to avoid canned food, but to avoid spoiled food canned or uncanned, but especially of canned.—Thom, C., Edmondson, R. B., and Giltner, L. T., *Jour. A. M. A.*, Sept. 20, 1919, 907. (*D. G.*)

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New Jersey Campaign of Publicity and Education in the Control of Venereal Diseases.—Working on the principle that in order to combat a disease effectively there must necessarily be wholesome and accurate publicity and education, the State Department of Health of New Jersey, in coöperation with the U. S. P. H. Service has been conducting such a campaign. During the first six months, the methods employed were confined almost entirely to the distribution of pamphlets, to lectures, and to the public exhibition of the motion pictures entitled "Fit to Fight" and the "End of the Road." Large paid advertisements had also been inserted occasionally in the leading newspapers in the state. More recently, the publicity has included huge, well painted billboard advertisements, street car advertisements and stereopticon slides in the moving picture theatres. There has apparently not been any serious adverse criticism to these methods of publicity. Billboard paintings have not only been erected in some of the larger cities, but some have also been placed along the road traversed by important railroads. Venereal disease clinics have also been established in some of the larger cities. As a result of this extensive and energetic campaign of publicity, the number of Wasserman tests and tests for gonococcus have increased considerably. This would indicate that more people are seeking competent medical advice and treatment today, than before the inauguration of the campaign. Not only has the number of specimens for diagnosis from the free clinic increased, but the rate of increase in the number of specimens submitted by private physcians has been even greater. This was particularly true in those communities where the publicity campaign was conducted vigorously. The number of cases of venereal disease that were reported were materially less than the number of examinations made. This is probably due to the fact that the state law requires physicians to report these diseases by name and that no provision is made to enforce the law. It is hoped that the publicity campaign and the clinics will be extended to other communities in the state in the near future.—S. H. Smith, Jr., *New Jersey Public Health News*, Sept., 1919. (*M. P. H.*)

Norway P. H. A.—Norway has formed its public health association in which there are five foundation planks, improvement of the individual hygiene, establishment of public baths in all towns and important places, housing improvement, hygienic nourishment and healthy field sport. Its name is, Folkehelseforeningen, and its address, Kristiania, Norway.

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Proper Classification of Venereal Disease.—The task of obtaining the right kind of publicity for syphilis and gonorrhea has been made immeasurably more difficult because of their designations as venereal diseases.

It is one of the peculiarities of the English language that two words derived from a single root may acquire opposite characteristics through usage.

From the root word Venus, Goddess of Love, are derived "venerate" and "venereal." The former is used to signify reverence or respect while the latter has been applied as a general term to designate a group of diseases and, because these diseases are often acquired through illicit sexual intercourse, odium has attached to it.

In justice to the thousands of blind babies, whose condition is due to gonorrheal infections of their parents, in fairness to the many persons who are innocently and accidentally infected, in consideration of the multitude of congenital syphilitic cases, these diseases, syphilis and gonorrhea, should be thought of, spoken of and written of as other diseases are. They should not be placed in a separate class and thus unduly penalize innocent victims.

The appelation "social diseases" is not only indefinite but incorrect. Syphilis and gonorrhea are unsocial in that they are not "adapted to society." No disease is "social," but if the term is applied to any it might just as appropriately be applied to many others: or they might with even more propriety be called "anti-social."

The various other terms which are in current use in this connection also are open to decided objections. "Blood diseases" might refer to lead poisoning, septicemia, puerperal fever, malaria or, in fact, any infectious disease which causes high temperature. "Loathsome diseases" is a weasel-worded term which might also describe any disorder from eczema to leprosy. As for "secret diseases," the very use of that word tells the story of past failures in locating and curing them. The unfortunate "secret" has sent unnumbered sufferers to the quack doctor or has caused them to allow their infections to develop unhindered rather than to confide in those agencies which are ready and willing to help them.

When our newspapers, magazines, doctors, teachers and the great public realize the necessity for a rational attitude regarding syphilis and gonorrhea, they will classify them with tuberculosis, yellow-fever, and certain other diseases which advancing science is rapidly driving into the realm of the have-beens.—Editorial, *Social Hygiene Bulletin*, Sept., 1919.

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The Future of the Tuberculosis Campaign.—Dr. D. R. Lyman, in his presidential address to the National Tuberculosis Association, points out the need of closer coöperation of the various tuberculosis agencies and organization with health authorities, local and state. The need of closer coöperation with the medical profession through the national, state and local medical societies, as well as through the individual physicians, was never so great as now, nor was the time ever so ripe to further this end. He urges that the principles of public health nursing should be as important a part of the curriculum in the nurses' training schools as surgical technique, and that the nurses be inspired to carry with them into every home the spirit of missionaries in the cause of public health. Our sanatoriums and hospitals present a splendid opportunity for the intensive training of the patients. A very important "line which should be connected with the switchboard of the tuberculosis association" is the industrial world,—large industrial corporations and the labor organizations. Both of these are vitally interested in all that concerns health. He strongly urges the adoption of universal military service for young men as they reach the age of eighteen. From the standpoint of national health such service will mean a chance for a complete physical study, and, if need be, corrective physical training. He very wisely points out that such proposed training should also include our women.—D. R. Lyman, *Amer. Rev. of Tuberculosis*, July, 1919, 257.

(*D. G.*)

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Much TB Testing in Virginia.—Virginia has a larger percentage of dairy animals which have been tested with tuberculin and found free from tuberculosis than any other State. The Old Dominion has 79 "accredited herds" on the list of the United States Department of Agriculture.

In the 12 months preceding March 1, 1919, a total of 22,571 cattle were tested in Virginia, under the coöperative plan, and 772 reacted to the test, a percentage of only 3.4. This is a slight decrease from the number of reactors located during the preceding year, during which 4.4 per cent of the cattle tested were found to be diseased. (*J. E. L.*)

STATE HEALTH NOTES—GENERAL

National.—Precise estimates of the cost of rearing the American child are made in the first section of a volume entitled "Standards of Child Welfare—A Report of the Children's Bureau Conference," now published by the Children's Bureau of the United States Department of Labor. Various authorities report the results of their inquiries in this field. Miss Florence Nesbitt, institute instructor in dietetics for the American Red Cross, states that in cities such as Chicago and Cleveland "it costs approximately $1,500 a year to buy the essentials for maintaining the average family of five—father, mother and three children—at what we might consider a normal standard." Miss Nesbitt indicates the conclusion that only a minority of those comprehended by her investigation have as much as this minimum income.

The raising of the age at which American children are permitted to enter industry, and a more stringent control of the conditions upon which young people are allowed to assume the industrial obligations of maturity, are urged in the second section of this volume.

The prohibition of all employment of children under sixteen, except during vacation periods; the establishment of higher age limits in certain occupations; the prohibition of all juvenile employment in dangerous trades; the establishment of physical and educational tests; and the handling of the entire problem of juvenile labor with greater consideration for the National Welfare are proposed.

The United States Public Health Service has taken up the matter of cancer and presents these facts with reference to it in a recent number of *Health News*:

"Cancer is unquestionably increasing throughout the world.

"At the beginning cancer is usually painless and difficult to detect.

"At its first small growth it can be safely and easily removed by a competent surgeon.

"Cancer is not a constitutional, or 'blood' disease.

"Cancer is not contagious.

"Cancer is, practically speaking, not hereditary.

"Every lump in the breast should be examined by a competent doctor.

"Persistent abnormal discharge or bleeding is suspicious.

"Sores, cracks, lacerations, lumps, and ulcers which do not heal, and warts, moles, or birthmarks which change in size, color, or appearance, may turn into cancer unless treated and cured.

"Probably 60 per cent of cancers of the rectum are first regarded as piles. Insist on a thorough medical examination.

"Continued irritation in some form is the usual cause of cancer. It rarely results from a sudden injury.

"A doctor who treats a suspicious symptom without making a thorough examination does not know his business."

The United States Public Health Service also calls attention to the need of registering the birth of the baby:

"Horses and cattle breeders owning 'blooded' stock do not fail to have their animals 'registered.' It adds to their value and is, therefore, justly regarded as highly desirable. Contrasting this attitude with that of many careless parents, the Service gives the following reasons why Baby's birth should be registered.

"1. To establish identity. 2. To prove nationality. 3. To prove legitimacy. 4. To show when the child has the right to enter school. 5. To show when the child has the right to seek employment under the child labor law. 6. To establish the right of inheritance to property. 7. To establish liability to military duty, as well as exemption therefrom. 8. To establish the right to vote. 9. To qualify to hold title to, and to buy or sell real estate. 10. To establish the right to hold public office. 11. To prove the age at which the marriage contract may be entered into. 12. To make possible statistical studies of health conditions."

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Florida.—The personnel of the Florida State Board of Health is the following:

State health officer, Ralph N. Greene, M. D.; assistant state health officer, William J. Buck, M. D.; chief of the Bureau of Vital Statistics, S. G. Thompson, M. D.; chief of the Bureau of Diagnostic Laboratories, B. L. Arms, M. D.; chief of the Bureau of Child Welfare, Grace Whitford, M. D.; director of the Bureau of Venereal Diseases, Lorin A. Greene, M. D.; chief of Bureau of Sanitary Engineering, Mr. G. W. Simons, Jr.

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Illinois.—Within the past few weeks clinical meetings devoted to tuberculosis have been held before thirty Illinois county medical societies. This is part of the tuberculosis program being carried out jointly by the State Department of Public Health and the Illinois Tuberculosis Association, whereby clinical meetings will be held in every county in the state at the same time utilizing these clinics for the expert examination of returned tubercular soldiers of whom there are now about nineteen hundred in the state.

The civic center of Freeport, in a three day drive, has raised a fund of $10,000 for the support of its crippled children's clinic and public welfare work.

This means that the children of Freeport and Stephenson County, who have been left in the wake of infantile paralysis as helpless cripples, will be restored to the use of their limbs and fitted for active service in life.

The schedule of the Division of Child Hygiene and Public Health Nursing, which has charge of these clinics for the month of November, embraced seventeen clinics in various parts of the state.

The established clinic list now includes the following cities: Springfield, Waukegan, Blue Island, Chicago Heights, Oak Park, Aurora, DeKalb, Freeport, Quincy, Kankakee, Danville, Monticello, Alton, East St. Louis and Rockford, with Bloomington, Jacksonville and Champaign knocking for admission. Dr. C. W. East, chief of the Division of Child Hygiene and Public Health Nursing, has just returned from Jacksonville where he held a conference with local health officers with a view of establishing a clinic. The other cities will be visited as soon as possible. The present corps of field workers, consisting of the chief, an assistant physician, and two public health nurses, will need reinforcing in view of the demands made upon it.

The Division of Engineering and Sanitation, State Department of Health, has placed its findings as to the conditions of sewerage, sewage disposition, city waste collection and disposal, street cleaning, and drainage of swampy areas at East St. Louis, before the War Civics Committee.

The state of Illinois has started savings accounts in thirty-six banks for the thirty-six prize winning babies at the Better Babies Conference held at the 1919 state fair. The idea is to set an early incentive to thrift as well as to pay the prizes awarded at the conference.

Jacksonville has voted a bond issue of $220,000, one half of which will be used to cancel outstanding indebtedness. The remainder will be used to build a new power and pumping plant, and to install a filtration plant which will meet the requirements of the State Department of Health.

Virden, the largest city in the state without a public water supply, and with a possible bonded indebtedness limited to $42,000, is endeavoring to install a water supply and sewage system at a cost of $130,000. The State Department of Health is aiding the proposition by sending a representative to that city to address the people on the manifest need for the improvements.

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New Mexico.—During the latter part of September a milk-borne typhoid fever epidemic at Albuquerque was investigated by Dr. George S. Luckett and Mr. Harold F. Gray of the department staff. The infection was found to be probably due to a bottler in the dairy. Emergency pasteurization and isolation of the bottler brought the outbreak under prompt control. During the early part of October Mr. H. F. Gray, chief engineer of the department, made an extended field investigation of water supplies and sewage disposal in eleven counties in the northeastern part of the state.

At the last meeting of the State Board of Health the following new divisions were authorized to be organized in the department of health when practicable: 1. Division of Child Hygiene. 2. Division of Laboratories. 3. Public Health Nursing.

Plans are now under way for the establishment of venereal disease clinics at Albuquerque and at Santa Fé, and probably several additional clinics will be established, with at least one in the northern, and one in the southern part of the state.

The department has been providing free virus for vaccination against smallpox for indigents throughout the state. As smallpox is practically endemic in New Mexico, special effort to enforce the vaccination law everywhere is being made. The Division of Public Health Education has been extremely active and a large quantity of educational material is being distributed regularly to the newspapers. A very complete plan of coördination of local semi-official agencies with the local health officers, for the control of possible recurrences of influenza, has been prepared and promulgated.

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New York.—"In spite of the increase in the number of the insane, New York state has not built a single new state hospital for the insane in over twenty years," said Governor Smith at the turning of the first sod for the new hospital at Utica recently. "The last state hospital which the state erected was that at Gowanda in 1898. At that time the thirteen hospitals for the insane housed 21,531 patients. Since then the insane population of the state has increased by more than 14,000. There are now, 35,580 patients in the state hospitals and they are crowded into quarters designed for only 29,687. In the absence of any new state hospitals it has not been possible by enlarging the existing institutions to anywhere nearly keep up with the demand for accommodations, so that the state hospitals are now overcrowded by 5,893 patients, or 21 per cent."

The governor also told of plans which are being prepared by the Hospital Development Commission for a state psychopathic hospital in New York City. This will be the research department of the state hospitals for scientific studies into the causes and treatment of insanity and it will also be used for the temporary care of the less serious cases of mental disorders, especially those of shorter duration. In this way, suitable care will be provided for many

patients nearer their homes, and there will be a distinct saving to the taxpayers in cutting down the number of long-term commitments to distant institutions. It is hoped that New York City will provide the state with a site for this much needed institution. The plans call for a 200-bed hospital.

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North Carolina.—The State Board of Health, Bureau of Sanitary Engineering and Inspection, announces the selection of nine men as sanitary inspectors, for the purpose of administering the state sanitary law which went into effect on October 1. The men appointed are as follows: L. A. Allen, High Point; H. M. Fowlkes, Rockingham; Claud Hussey, High Point; H. G. Blackwell, Wake Forest; T. G. Moseley, Raleigh; W. J. Steele, Salisbury; A. M. Surratt, Denton; L. G. Whitley, Elm City; G. E. Hapgood, Fall River, Mass.

The state has been districted and one of the above men will be placed in charge of each district of approximately ten counties each.

That the people are in earnest in their desire to meet the requirements of the State Sanitary Law could be no better illustrated than by the type of sanitary devices being so generally favored. A multitude of towns have decided that the best is none too good for them, and are, therefore, making immediate preparation for replacing all existing insanitary privies with modern sewerage. More than fifty towns in the state are known to have taken this action already, and many others are daily being added to the list.

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Ohio.—Classification of Ohio's 102 health districts into five grades, for the purpose of fixing the salary to be paid to the district health commissioner, has been made.

The grades were established by the State Civil Service Commission in compliance with the Hughes Act, which revises the state's local health administrative organization. Salaries will increase automatically after specified periods of efficient service.

Completion of an anti-trachoma campaign in Scioto County has been announced by the State Department of Health. Trachoma is a contagious eye disease which frequently causes blindness. It is said to be prevalent in many Ohio River and neighboring counties, and the health authorities plan to carry the campaign into other localities soon.

In the course of the Scioto County work, 10,577 school children had eye examinations—about evenly divided between Portsmouth city schools and the rural districts. Of these, 179 were found to have trachoma. Free treatment was supplied to needy cases and many cures were effected. Five-sixths of the cases were found in rural schools.

The state health authorities will conduct a series of trachoma campaigns in counties where the disease is prevalent. The United States Public Health Service is coöperating with the state authorities. The work in each county will include a trachoma survey of the schools and the establishment of a free clinic.

Diphtheria and scarlet fever, now on the increase in Ohio, have been subjects of a warning issued by the State Department of Health. Precautions by parents, physicians, school authorities and health officials were advised.

Diphtheria cases reported in September totaled 655 and scarlet fever, 423. October reports, not yet compiled, will run higher. Scarlet fever is more prevalent than in several preceding autumns.

Among cities and other localities reporting diphtheria are: Lima, Cincinnati, Columbus, Dayton, Dover, Youngstown, Cleveland, Columbus Grove, Forest, and approximately seventy other scattered local health districts with a few cases each. Leading districts in scarlet fever prevalence are: Lima, Cincinnati, Dayton, Columbus, Akron, Sebring, Youngstown, Nelsonville, Jackson, Scioto County, Darke County, London, Fostoria, Bucyrus and Lorain.

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Utah.—Dr. Hardie Lynch has recently been appointed health supervisor for the schools of Salt Lake City. The health work in the Salt Lake City Schools is undertaken as a joint responsibility between the City Board of Health and the Board of Education. Dr. Lynch, while assuming responsibility for the special work in the schools, is appointed also as assistant to Dr. Paul, the city health commissioner.

The program of health education officially adopted for the schools of Utah covers the following six phases:

Provision for the physical examination and medical inspection of all school children at least once a year; a system of "follow-up," for the purpose of correcting the defects discovered by the medical inspection; the inspection of school buildings and grounds and the maintenance of satisfactory sanitary and hygienic conditions; the protection of the school population from contagious diseases by daily inspection and exclusion of incipient cases; careful instruction in personal, household, and public hygiene; and systematic physical training as a means of promoting normal physical growth.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by FRANCIS H. SLACK, M. D., and MR. JAMES M. STRANG.

Laboratory Experiments with a New Organic Arsonic Compound.—This substance of N-phenylglycineamide-p-arsonic acid is one which readily lends itself to almost any method of administration, and can be given to animals in very large doses. Repeated administration of these large doses at short intervals is possible and there is no cumulative action, in fact the animal develops a tolerance allowing an increase of dosage to a point well above that which is fatal to normal animals. It is an agent of marked therapeutic effect in the treatment of experimental trypanosomiasis of mice, rats and guinea pigs. A series of experiments in the treatment of experimental trypanosomiasis of rabbits gave equally favorable results, these latter experiments being of especial value since experimental trypanosomiasis in rabbits presents many points of similarity with the naturally acquired disease in human beings. Laboratory animals infected with spirochetes of the *recurrens* group and with *Treponema pallidum* were also treated. The infections were ameliorated, and although the organisms were not immediately destroyed, the treatment produced beneficial results comparable to those obtained by more powerful spirochetecidal agents. Often the *spirochahatæ* are not destroyed by N-phenylglycineamide-p-arsonic acid, but their capacity for stimulating reaction in the tissues is destroyed, or else the reactivity of the tissues is lessened. At any rate, living spirochætes may remain in the tissues for considerable periods of time without giving rise to the usual tissues reaction which characterizes these infections.—Wade H. Brown and Louise Pearce, *Jour. Exper. Med.*, Nov., 1919.

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"Delayed Negative" Wassermann Reaction.—Attention is called to the desirability of the examination of the test-tubes at 15-minute intervals after the addition of the hemolytic system for detection of those cases in which the reaction is delayed a half hour or longer, but eventually shows as negative. Such cases comprise about 1 per cent of all tests. In 1793 in tests by the author, there were 18 "delayed negatives," and investigation showed that 8 of these had a positive history of luetic infection, 6 were questionable, all of whom denied syphilitic infection, but as each of these was suffering from, or had a history of gonorrheal infection, and as there was no question as to frequent exposures, they were regarded as probably syphilitic. Of the remaining 4, one was an acute alcoholic, and on this account a positive reaction may have been masked. With 44 per cent of those showing a "delayed negative" reaction giving a definite history of syphilitic infection, 33⅓ probably syphilitic, and but 23 per cent probably negative, this finding seems of sufficient significance to warrant examination of the tubes at 15-minute intervals after addition of the hemolytic system rather than waiting for a full hour's incubation.—Guthrie McConnell, *Jour. Lab. and Clin. Med.*, Oct., 1919.

✱

Transmission of Influenza.—A series of experiments throwing light on the problem of the etiology of influenza were conducted at the Yale Army Laboratory School. A feature of the tests was the use of volunteer subjects for direct experimentation. Applications of suspensions of *B. influenzæ* to the nares and nasopharynx gave negative results; in but one case was there even a transient abnormality of temperature. In one instance, the culture employed was a filtrate from the lung of a victim of typical influenza, and in another, the culture was freshly isolated from a fatally infected human. The presence of *B. influenzæ* does not alter the normal flora of the region. When experimentally inoculated, the bacilli disappear from the nares within 24 to 72 hours, but only after two weeks or more, from the nasopharynx. In routine examination of nasopharyngeal secretions from suspected cases, the use of plain, blood, chocolate and oleatum soap agar is recommended, the blood agar being especially helpful in showing the presence of streptococci.—Wahl, White & Lyall, *Jour. Inf. Dis.*, 1919, 419.

✱

Biologic Classification of Hemolytic Streptococci.—Following the example of the workers on the pneumococci and meningococci, Havens applied serological methods to the classification of hemolytic streptococci. A careful investigation of 292 strains obtained from a variety of sources showed that there were three main groups comprising 93 per cent of all the cultures; 47 per cent were of the first group, 19 per cent of the second, 27 per cent of the third, the remaining 7 per cent forming a group of indefinite composition. Group sera were found to react specifically with all members of the same group, and not with members of any other.—Havens, *Jour. Inf. Dis.*, 1919, 25, 315.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst, R. P. Albaugh, P. M. Holmes, and E. B. Starr.

Public Health Nursing and Industrial Hygiene.—Public health nursing is the right arm of preventive medicine. Chicago spent $165,461.25 on its Visiting Nurse Association in 1918. It has taken some time to efface the impression that visiting nurses are charity workers. The visiting nurse instructs in the elements of public health. She must be something more than the graduate of a school of nursing, she requires further training, which training is not yet standardized, especially in regard to nurses in industry. Here she is of value giving first aid treatments, but this is the smallest part of her work in any factory. She must win the confidence of the employees when her utility and functions are almost unlimited. She acts as housekeeper, sanitary inspector and health advisor in the plant, particularly in directing afflicted workers to seek proper treatment. She, best of all, can connect the industry with the home.—Mary Beard, *Jour. of Ind. Hyg.*, Aug., 1919, pp. 194–200. (*E. R. H.*)

✠

Health of Soft Coal Miners.—In the report of the Health Insurance Commission of the State of Illinois, pages 376–402, the writer (E. R. Hayhurst) gives the fullest of any of his statements so far published, upon coal miners. The field investigations in Illinois and Ohio covered the respective coal areas and were made in conjunction with the respective state departments of health and the state health insurance commissions. The summer of 1918 was devoted to the field work. Traveling was done mostly by automobile. Fifty-six mines in Illinois were visited, employing 15,809 of the 90,000 workmen so engaged. At the same time fifty-three physicians in mining towns were personally interviewed in a uniform manner. The working conditions of soft coal miners are summarized as are also the health hazards peculiar to their occupations. Housing conditions and local health administration are reported upon principally by Paul L. Skoog. The most interesting features probably are types and extent of sickness which are summarized under "rare," "less frequent than usual," "usual infrequency," and those "with occupation-earmark" (rheumatic, "asthmatic" and alcoholic afflictions). A careful study was made of the mortality statistics covering 5,428 deaths in six years. The figures were compiled from the carefully kept records of the miners' union insurance bureau, Springfield, Ill. Tables show the chief causes of death and compare them with similar figures of the United States Census. One table shows that where death due to violence (36.8 per cent are excluded, the actual deaths) due to tuberculosis are nearly the same as those for the working population at large (14.6 per cent *vs.* 16.6 per cent). The death rate tendencies are also analyzed. The latter part of the report discusses how miners cope with sickness and death hazards, describes the present community medical facilities and gives a general summary. Health insurance schemes were found already existent among the miners. Quackery also flourishes. "There is large room for improvement. To a great extent it involves education in ideals. . . . Stress should certainly be laid on the application of means to prevent sickness, as well as means to cope with sickness that exists." The Health Insurance Commission's Report is procurable from Louis L. Emmerson, Secretary of State, Springfield, Ill. (*E. R. H.*)

✠

Factory Inspection and Factory Inspectors.—The purpose of labor legislation is the protection of the working population. The real protection depends solely upon the laws which are enforced. Non-enforcement breeds discontent and fosters anarchy. England began factory legislation in 1802. France began inspection in 1874. Massachusetts in 1886. "The most dangerous unguarded machinery I know is the machinery of factory inspection in the United States, exposed to a most pernicious political influence and to the parsimony of legislators. . . ." Workmen know the incompetency of the average factory inspector and his absence of zeal for his work. In contrast, factory inspection in Europe is a profession and a life work. Inspectors have a scientific education and technical training while superiors are promoted from the ranks. Detective inspection may be performed by ignorant and inexperienced men. Not so with preventive inspection. The perfection in the English, German, Austrian and Belgian systems is described. The low pay offered the American factory inspector is a chief fault; lack of tenure in office another. The qualifications, selection and training of factory inspectors is next given in detail. Personality plays a most important rôle. A special course for the training of factory inspectors in high schools, colleges and technical schools is urged.—George M. Price, *Jour. of Ind. Hyg.*, Aug., 1919, pp. 165–176. (*E. R. H.*)

Carbon Monoxide Gangrene.—Briggs of Boston reports an interesting instance of gangrene of the hands and feet due to carbon monoxide poisoning. Three brothers were in a motor boat on a fishing trip. The engine exhaust pipe had been so adjusted in the process of repair, that the fumes were exhausted into the small cabin. One of the brothers was found dead and another unconscious by the third brother who had remained outside the cabin. The second brother who recovered consciousness was treated at a hospital for second degree burns on the backs of hands and feet which were covered with large tense blebs. Instead of the condition improving gangrene developed and thirty-seven days after the accident, amputation of three fingers of the right hand and four on the left hand were performed. The necrotic areas on the feet sloughed and healed by granulation. Two similar cases are reported from literature by the author.—J. Emmons Briggs, *Jour. A. M. A.*, Aug. 30, 1919, pp. 678–697. (*P. M. H.*)

Mustard Gas.—In discussing the toxicity and treatment of mustard gas effects, Marshall points out that (1) the rapid penetration of the substance into the cell is due to its high liquid solubility; (2) the hydrolysis by the water in the cell forms hydrochloric acid and dehydroxyethysulphid, and (3) the hydrochloric acid so formed does injury to some part of the cell or cell mechanism. The gas is very toxic; one part in 14,000 of air will kill an animal in five minutes. These figures will probably apply to man as there is no wide species variation when applied to rabbits, guinea pigs, mice and monkeys. The ideal treatment for mustard gas poisoning would be the use of some non-toxic substance that would quickly penetrate the cell and neutralize the hydrochloric acid. No such agent has been discovered. Tests as to individual susceptibility were made and it was found that whites are less resistant than negroes; some persons are 600 times as susceptible as others; 2 to 3 per cent of white men are hypersensitive; 20 to 40 per cent are resistant.—E. K. Marshall, *Jour. A. M. A.*, Aug. 30, 1919. (*P. M. H.*)

Illinois' Health Commission Reports.—The commission created by legislative enactment in 1917 has issued a 647 page report in book form dealing with the extent, causes, cost and results of sickness among wage-earners and their families in the state of Illinois. Majority and minority reports are included. The former does not feel that the findings justify compulsory health insurance; the latter concludes that the findings show definite evidence of the need for compulsory health insurance. The majority report estimates that 20 per cent of all wage-earners lose more than seven days per year through sickness or non-industrial accidents with an average of 27 to 29 days per worker disabled. The cost of sickness is estimated at $57,000,000 per year for wage-earners alone and for wage-earners and families at $86,000,000 annually. Sickness figured as a cause or accompanying condition in from one-third to one-half of all cases requesting charity. Practically one-fourth of dependency cases due to sickness were from tuberculosis and other chronic conditions. The majority report also considers the venereal problem, tuberculosis, hospital facilities, infant welfare, maternity care, health legislation, public health nursing, etc. The report is an excellent one and interesting from many angles. It should prove of value to physicians, legislators, sociologists, etc. Procurable from Secretary of State, Springfield, Ill., 1919. (*P. M. H.*)

Manganese Poisoning.—The commercial uses of manganese are many, but published instances of poisoning are rare. The authors give a historical summary beginning with Couper in 1837. Typical case histories are abstracted. Fifteen foreign cases are on record, the exposure being due to manganese dioxide. Casamajor's cases in New Jersey, at first thought to be due to work in a magnetic field, are mentioned. Breathing the dust of the ores is the source. The authors think too much stress has been laid on eating in dust-free environment. The emphasis should be placed on the many hours of work in the dusty environment. The symptoms of the disease are very definite: langour and sleepiness, mask-like faces, monotonous voice, twitchings, cramps, clonus, retropulsion and propulsion, a peculiar slapping gait, laughter, less frequently crying. There are no life-shortening degenerations. Treatment is preventive and consists in dust removal and physical examinations aimed especially at intercepting the susceptible individuals.—Edsall, Wilber, and C. K. Drinker, *Jour. of Ind. Hyg.*, Aug., 1919, pp. 183–193. (*E. R. H.*)

Irritating Gases.—The chronic or residual lesions following the inhalation of the poisonous gases used in war times are of decided importance. The escharotic action of mustard gas, chlorine, superpalite, etc., causes an inflammatory edema and results in a cellular exudate which may be followed by organizations and fibroses causing obliteration or dilatation of the smaller air passages. The author advises grade respiratory exercises as a measure to prevent scar formation in the smaller divisions of the bronchi.—M. C. Winternitz, *Jour. A. M. A.*, Aug. 30, 1919, pp. 689–691. (*P. M. H.*)

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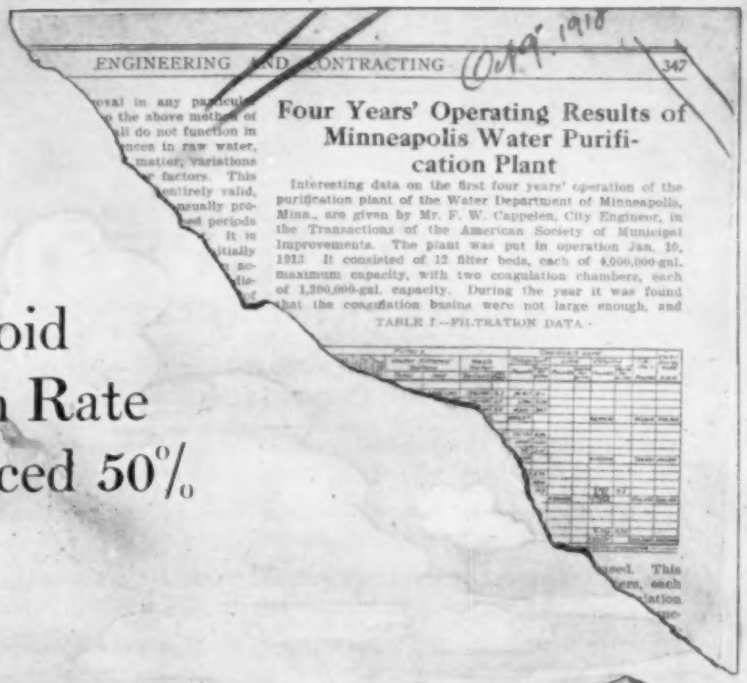
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The publishers believe they are safe in saying that no other man in the United States has as broad a knowledge of narcotic addiction as the author of this remarkable little book. Dr. Bishop states in lucid terms just what the narcotic problem is and how it may be controlled. His pronouncement is revolutionary in conception and will give a message of hope, not only to the addict, but to **physicians generally, anyone of whom can successfully handle morphine addiction if properly informed.**

This work is an impersonal survey of the whole situation. Dr. Bishop discusses the modern conception of **opiate addiction as a disease,** which he first outlined in the Journal of the American Medical Association, Feb. 8, 1913. He shows how this real disease should be treated as are other diseases. This is in direct opposition to the popular conception that addiction is a "vice," a "habit," a "morbid appetite," and should be punished socially as well as legally. The way in which its victims are spoken of as "drug habitue," or "drug fiend," or "dope fiend," shows scientific neglect of it and apathy and indifference on the part of those who ought to be better informed.

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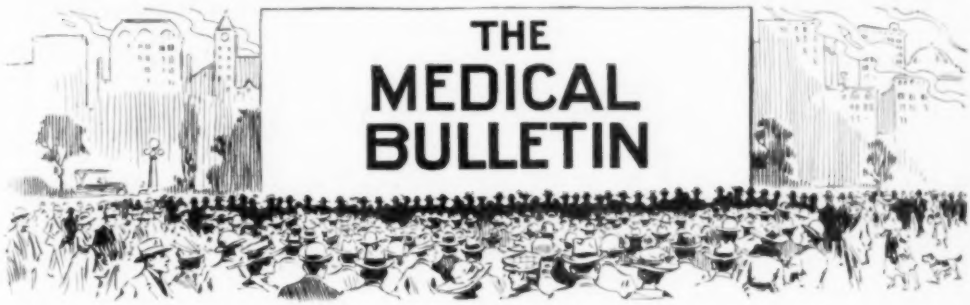

THE MEDICAL BULLETIN

Vol. I DECEMBER, 1919 No. 1

THE LUIKART CHILDREN
Carter's Mercury Antidote

The recent publicity given the Luikart children of Detroit, poisoned by corrosive sublimate administered by their mother, and saved from death through the timely help of Dr. Thomas A. Carter, of Chicago, must impress on every physician the advisability of having a supply of Doctor Carter's antidote on hand for such emergencies. The administration of Carter's antidote is very simple—one tablet being given for each tablet of the poison taken. It is supplied in bottles of 100 and 500 tablets by The Abbott Laboratories.

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The latest form in which Chlorazene has been produced and we believe ultimately the most popular is

AROMATIC CHLORAZENE POWDER

This is a combination of 5% of Dakin's Chlorazene with sodium bicarbonate, sodium chloride, saccharin, and eucalyptol. A teaspoonful of this powder dissolves instantly in a glass (about 6 ounces) of water and produces a delightful aromatic antiseptic solution, which is 2½ times as strong as pure carbolic acid. It makes an agreeable and powerfully germicidal mouth-wash, spray for nose or throat, gargle, or douche. It is cooling, refreshing, and of great germicidal power. It may also be used for general antiseptic purposes, such as applications to cuts, wounds, skin diseases, etc.

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The development of remarkably improved germicides—Dakin's Chlorazene and Dichloramine-T together with a new type of non-sticking wax-impregnated dressing—Parresined Lace-Mesh Surgical Dressing—makes possible a procedure for wound treatment which is giving remarkable results.

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Second: CLEAN UP all existing infection by irrigating with Chlorazene, Dakin's powerful, non-irritating, water-soluble antiseptic. The wound is then dried and sprayed with solution of Dakin's Dichloramine-T in Chlorcosane, the most powerful germicide known to science, accomplishing in ½ minute the same degree of sterilization which it takes 7 hours for bichloride or 24 hours for phenol, to produce. The antiseptic action of Dichloramine-T-Chlorcosane is prolonged over 18 to 24 hours, requiring dressings only once daily, and cleaning up infection at a very rapid rate.

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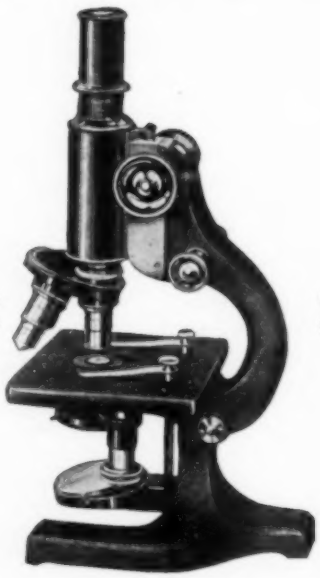

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During the influenza epidemic of 1918, additional strains obtained from virulent cases in different parts of the country were added. These strains include:

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Bacillus Friedlander.

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The experience of physicians who used **Mulford Influenza Serobacterin Mixed** in industrial institutions and private practice confirmed their belief in its efficiency, both as a prophylactic and therapeutic agent.

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M 109-0—4-syringe . . 1 immunization.
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M 109-4—20-mils . . . 8 immunizations.

As immunity is only relative, there is an advantage in four injections, beginning with a small initial dose, progressively increased, thus affording a more complete and lasting immunity.

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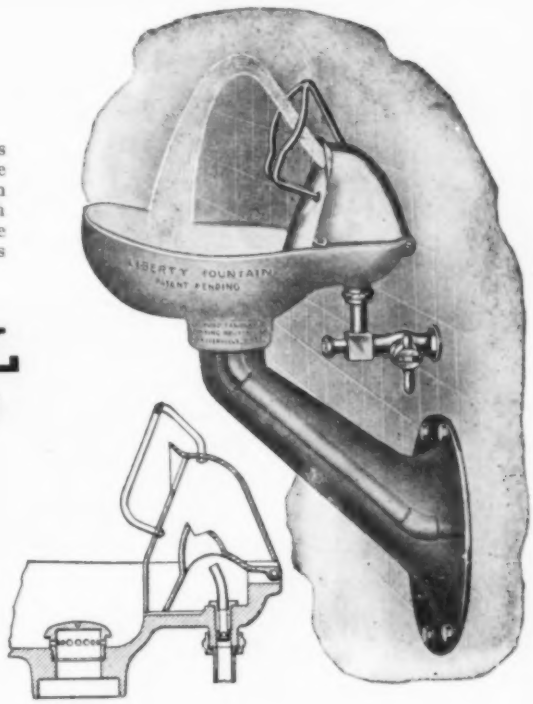

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100% SANITARY

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Our illustrated booklet will interest you.

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Has Never Before Been Advertised

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Since you know the value of sanitary glazed porcelain (clay) in the operating room and laboratory, in the bath room and in the kitchen, you will appreciate what Vitrified Salt-Glazed Clay Sewer Pipe means in the sewer.

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Public Health Clippings.

To me, the tragedy of this earth is a diseased child. The natural inheritance of a child is joy and strength and growth and freedom. He is robbed of it all by disease. To me, the most tragic indictment of civilization is a diseased child—civilization that stands still and lets a little child, through ignorance of his parent or his teacher or for any cause, be robbed of his divine inheritance of the joy and happiness of childhood—of the strength and growth of childhood! Medical inspection is intended to help prevent that tragedy—to help remove that terrible indictment against our Christian civilization.—*J. Y. Joyner, M. D.*

✻

A Common Complaint.—Physician—"Do you ever have any trouble with your stomach?"

Patient—"Yes, doctor, getting it comfortably full."—*Exchange.*

✻

Alas, We Must Remain Homely.—"A rub with alcohol is a great beautifier," says a physician. Nowadays the rub comes when you try to get the alcohol.—*Boston Transcript.*

✻

There is a budget that we pay with frightful regularity: it is that of unnecessary disease and premature death.—*Irving Fisher.*

✻

No Wonder She Remembered.—"It's four years now since he left me," said the deserted wife. "I remember it just as well as yesterday—how he stood at the door, holding it open till six flies got into the house.—*Boston Transcript.*

✻

Too Much Precaution.

There was an old lady of Crewe
Who was horribly frightened of flu;
She spoilt her complexion
Through fear of infection,
Having fixed on her gas mask with glue.
—*Michigan Public Health.*

✻

No man has the right to endanger his fellow man with infection, any more than he has the right to endanger him with physical injury.—*M. J. Rosenau.*

✻

The Ranking Officer.—"Wonder why that newly returned captain always salutes his wife?"

"She underwent a major operation while he was away."—*Journal A. M. A.*

✻

No sanitary improvement worth the name will be effective whatever acts you pass or whatever powers you confer on public officers, unless you create an intelligent interest in the public mind.

(*Continued on Page XXIII*)

LIVE LANTERN SLIDES FOR HEALTH LECTURES

A picture tells more at a glance than a hundred words of narrative, and its message is remembered far longer.

EDEXCO LANTERN SLIDES

will add force and entertainment to your Health Talks

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Safe, Clean, Wholesome and from Healthy Cows

In addition, Borden's Milk is Pasteurized in accordance with the requirements of the Local Department of Health. You take no chances with Borden's Milk. It is safe when delivered to you.

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There Are 16,000 UTILITY Honeycomb Ventilators on Chicago Surface Lines Cars

Among the 125,000 or more Utility Ventilators in service on electric and steam railways throughout the country are some 16,000 on the Chicago Surface Lines. These were installed only after the most exhaustive competitive tests by the street railway companies' engineers. The Utility Honeycomb Ventilator showed the highest all around efficiency and the contract was awarded for this ventilator.

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And February, March and April will continue it

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Write for our complete price list. It includes over 110 different stains, reagents, etc. Mailed free on request.

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PUBLIC HEALTH CLIPPINGS—*Continued*

Let us not forget that the entire child goes to school—body, soul and mind. Any system of education which ignores one or the other of these factors will be to the disadvantage of the child.—*M. J. Rosenau.*

✽

Slippery Footing.—"Never put ice in your drinks. Cool them by standing on ice," says a health bulletin. We started to try this method but got "cold feet."—*Boston Transcript.*

✽

There should be no uncared-for tuberculosis patient in any civilized community. The untrained and uncared-for tuberculous individual, whether he lives in a palace or a tenement, will constitute a center of infection.—*Knopf.*

✽

Give Life a Chance.—Health is natural; disease is abnormal. Life is a fight against disease, and nature has provided that life shall win if given half a chance.—*Herald of Well Country.*

✽

Un-Feelin'.—Doctor Green—"Your father insulted me. Said he wouldn't have me attend a cat for him."

Miss Keen—"The idea! I don't see why papa should fear to commit a cat to your charge—a cat has nine lives."—*Boston Transcript.*

✽

Self-respect is the cornerstone of all virtue.

A straight line is shortest in morals as in geometry.

Babies and old people should not take a cold bath.

Warm baths are safe for everybody and should be taken at night before going to bed.—*Buffalo Sanitary Bulletin.*

✽

Health Rhyme.

A man should take example
From the clock, says Doctor Brown.
Which always ceases working
When it gets run down.

—*Boston Transcript.*

✽

Rural school children suffer as much from defective nutrition as school children in cities. The children with the warm lunch are better nourished and do their school work with better results.—*Louisiana Monthly Bulletin.*

✽

An Unusual Case.—"Can you see as well with one eye as with the other?"

"Better, sir."

Best Fitted to Digest

Puffed Wheat and Puffed Rice are whole grains steam exploded. Corn Puffs are corn hearts puffed.

The process was invented by Prof. A. P. Anderson, formerly of Columbia University. The object is to blast all food cells for easy, complete digestion.

Ordinary cooking breaks part of the food cells. This process breaks them all. And it makes grain bubbles, thin and flimsy, with a delicious taste.

These delightful grains, cooked, toasted and exploded, are the best-cooked cereals in existence.

The Quaker Oats Company

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Puffed Wheat
Puffed Rice
Corn Puffs

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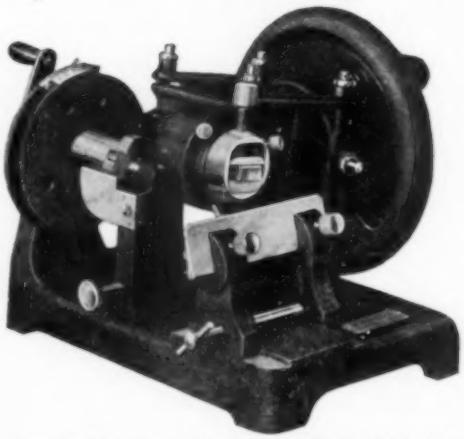

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Spencer Microtome No. 810, complete with knife $90.00

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AND DELINEASCOPES
also possess advantageous features

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URETHRITIS

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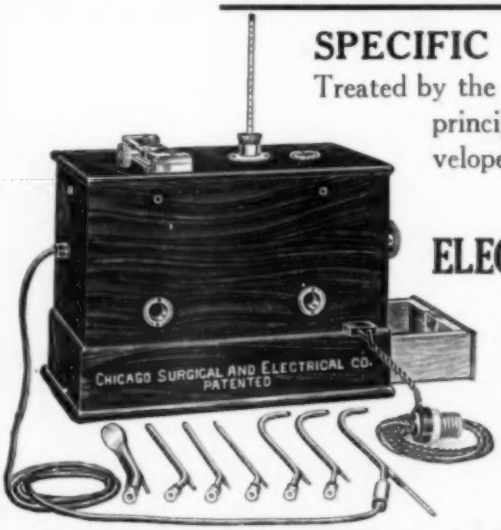
Treated by the application of heat is not a new principle, but has remained undeveloped for the lack of a proper method.



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is a new scientific apparatus, that supplies the missing link and furnishes controlled, uniform heat within a fraction of a degree.

Write for detailed information

CHICAGO SURGICAL AND ELECTRICAL CO.
MANUFACTURERS
318 W. SUPERIOR STREET CHICAGO, ILL.

(*Continued from Page 1002*)

Dust in the Abrasive Industry.—A high tuberculosis ratio in an industry is significant of an excessive death rate from this disease. The death rate is increased to the extent of one or two out of every 1,000 persons employed in these dusty trades each year because of the special hazards of their employment. The most hazardous dusts are the small, hard, sharp nonabsorptive particles. The emery and grinding wheels manufactured are composed of a fused aluminum compound and carborundum, each ingredient having a hardness between 9 or 10, or closely approaching the diamond. One series of tests made in a grinding room which was supposed to have a good grade of enclosed devices and exhausts showed grave defects, in that exhaust ducts were so small that their high frictional resistance not only increased the cost of operation but decreased suction pressure, tending to clog; the system had been allowed to deteriorate through lack of maintenance; the fan capacity was too small and the hood applications too limited,—the whole giving a false sense of security. Counts in rooms showed from 15,000,000 to 222,000,000 one-fourth standard unit particles per cubic foot—the highest number that has ever been recorded in industrial dust counts not excepting the Joplin, Mo., mines. The average number of particles was 31,000,000 and the average weight 1.74 mgs. per cubic foot (as against maximum standards which have been set at one-fourth million particles or 0.02 mgs. per cubic foot). Workers in the office building and those in the vicinity also had dangerous exposures to this fine, menacing dust. The normal dust content of the air at this season was only 0.0005 mgs. per cubic foot.—Winslow, Greenberg and Greenberg, *Reprint No. 530, Public Health Reports.* (*E. R. H.*)

*

What Should Physical Examination Include?—Selby lays down the rules for physical examinations and the exact methods of carrying them out as a result of a system in practice at the National Malleable Castings Co., Toledo, Ohio. A copy of the examination used accompanies the article.—C. D. Selby, *Hospital Management*, Oct., 1919, pp. 53–56. (*E. R. H.*)

*

Industrial Poisoning of the Aromatic Series.—This is one of the Cutter lectures delivered at Harvard Medical School. The author takes up benzene and its derivatives with a historical and case review dwelling on nitrobenzene, aniline, and especially upon the manufacture of dyes. Those having to do with coal tar by-products should read this article in full.—Alice Hamilton, *Jour. of Ind. Hyg.*, Aug., 1919, pp. 200–212. (*E. R. H.*)

KEEP THE BALL ROLLING

There are now more than 3500 A. P. H. A. members. Twice as many as in December, 1918. President Frankel spoke in New Orleans of 6000 members as the goal for 1920.

GOALS ARE MADE BY JOINT EFFORT!

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169 Massachusetts Ave., Boston, Mass.

I nominate for membership

Name .....

Address .....

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(Please write your address)

Diphtheria

Permanent Immunity

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE confers permanent immunity against diphtheria. This immunity is established after 8 to 12 weeks. All children from 6 months to 5 years of age, as well as those adults whose duties constantly bring them in contact with diphtheria, should be immunized if they react positively to the Schick Test. DIPHTHERIA TOXIN-ANTITOXIN MIXTURE offers the medical profession a means of absolutely eliminating diphtheria from every community; a result not heretofore possible.

Susceptibility to diphtheria can be readily determined by the SCHICK TEST. In the face of immediate exposure, individuals found susceptible should be protected with a prophylactic dose of Diphtheria Antitoxin. Such protection lasts from 2 to 4 weeks. If not directly exposed, susceptible individuals should be immunized with Diphtheria Toxin-Antitoxin Mixture.

When used *early* in the disease, DIPHTHERIA ANTITOXIN has reduced the mortality to about 2%. In the days before DIPHTHERIA ANTITOXIN, the mortality was 33%.

Diphtheria Toxin-Antitoxin Mixture

Package of 3 vials (one immunization) $1.00

Schick Test

Package of 10 tests; Lederle outfit ..... .50

Diphtheria Antitoxin

1,000 Units (prophylactic dose) in syringe..... .75
5,000 Units (therapeutic dose) " " 3.00
10,000 Units " " " " 5.00
20,000 Units " " " " 9.00

Requests for further information are invited.

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Man's ways of living changed. Instead of yielding to his changed conditions, however, he learned how to adapt his life to meet his needs. He found there were certain laws which had to be observed to protect health. These laws say man must have fresh air and sunshine, exercise and proper rest, good food and clothing, plenty of play and plenty of work."

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50,000 Americans were killed *in 19 months* of the great war.

400,000 Americans succumbed to Influenza *in 6 months* of the epidemic.

Deaths from Influenza and All Forms of Pneumonia

Sept. 14, 1918 to March 1, 1919, in Forty-Six American Cities

(U.S. Census Reports)

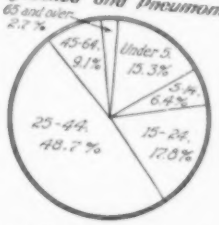
Greater New York	31,960	Kansas City, Mo.	2,227	St. Paul	1,091
Philadelphia	15,566	Denver	1,848	Syracuse *	1,027
Chicago	13,176	Providence	1,822	Richmond, Va. *	995
Boston	6,183	Milwaukee	1,586	Jersey City *	974
Pittsburgh	5,698	Seattle	1,429	Columbus, O.	936
Baltimore	4,962	Portland, Ore.	1,425	Fall River, Mass.	902
Cleveland	4,405	Minneapolis	1,295	Nashville	894
San Francisco	3,785	Rochester, N.Y.	1,274	Toledo	885
St. Louis	3,613	Oakland	1,234	Atlanta *	854
New Orleans	3,313	Worcester, Mass *	1,227	Memphis *	807
Los Angeles	3,193	Louisville	1,206	Albany, N.Y.	748
Washington, D.C.	3,116	Birmingham *	1,180	Dayton, O.	748
Buffalo	3,075	Indianapolis *	1,149	Cambridge, Mass.	698
Newark, N.J.	2,663	New Haven	1,141	Lowell, Mass.	695
Cincinnati	2,263	Omaha *	1,133	Spokane	557
				Grand Rapids	349

* Complete Data Not Received.

Deaths According to Age

New York City, Sept. 8 to Nov. 30, 1918

Influenza and Pneumonia

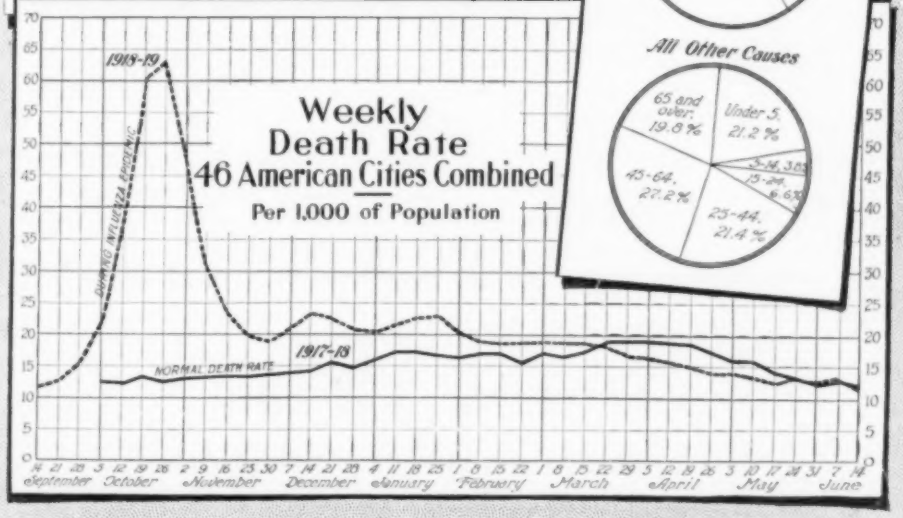


All Other Causes

Weekly Death Rate

46 American Cities Combined

Per 1,000 of Population



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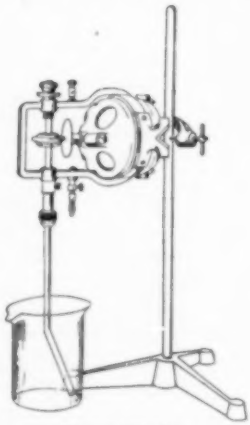
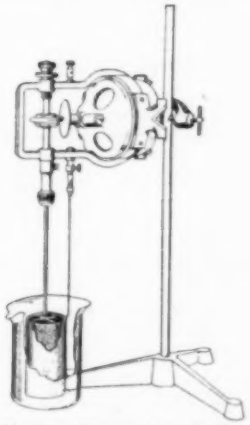
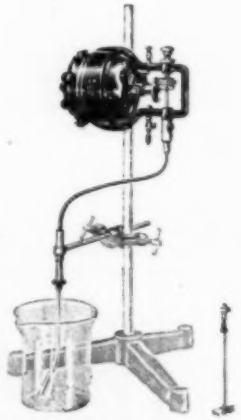


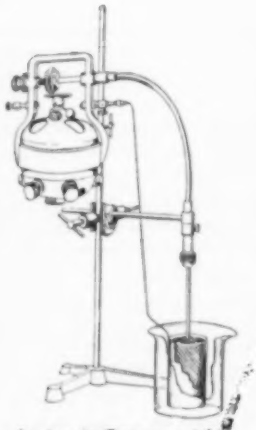
Direct Stirring



Used as Rotator for Anodes in Electrolytic Analysis

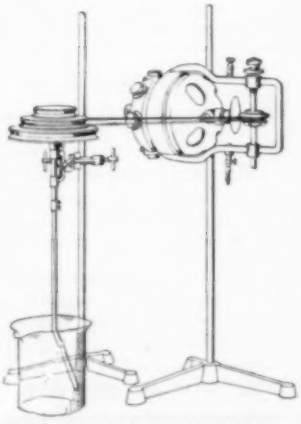


Stirring with Flexible Shaft to Avoid Corrosion of Motor by Acid Fumes



As Anode Rotator with Flexible Shaft

Complete Description and Price will be found in Bulletin 83G.



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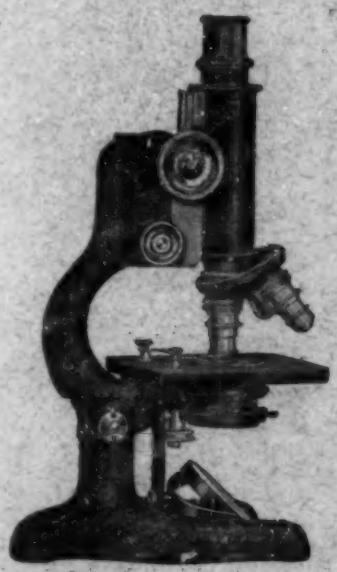

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